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THE

DENTAL REVIEW.

DEVOTED TO THE ADVANCEMENT OF
DENTAL SCIENCE.

EDITOR:

A. W. HARLAN, M. D., D. D. S.

ASSOCIATE EDITORS:

C. N. JOHNSON, L. D. S., D. D. S. T. L. GILMER, M. D., D. D. S.

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DENTAL REVIEW.

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ORIGINAL COMMUNICATIONS.

A WORD OF CAUTION.*

BY C. B. ROHLAND, D. D. S., OF ALTON, ILL.

Ever since the discovery of the properties of cocaine, the attention of the dental profession has been especially drawn to the subject of local anæsthesia. The dread of pain is instinctive with every one, and every right-minded dentist is loth to inflict it. On account of the sensitiveness of the teeth and adjacent tissues, and the character of the operations we are called upon to perform, the dental chair is approached with a degree of dread, in most cases entirely out of proportion to the actual discomfort caused. Nevertheless, it is a real and palpable dread, and it is a consummation devoutly to be wished, that some means be devised or discovered whereby the pain necessarily inflicted may be safely overcome.

General anæsthesia has proven itself too cumbersome in its application, too uncertain as well as dangerous for the minor operations that lie within the province of dentistry. When, therefore, cocaine, made its appearance, and scientific investigation strongly hinted that at last the means were at hand for producing local anæsthesia with ease and absolute safety, it was welcomed by none more rapturously than by the dentist. Experience, however, soon cast a shadow over these roseate expectations, and the profession began to recognize that cocaine, like all other known anæsthetics was a death-dealing drug, and called for the same caution, skill and care in its administration. Here is where the flood gates were opened for a host of secret preparations, each one claiming to be the only absolutely safe local anæsthetic ever discovered. And here is where I want to utter my word of caution.

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* Read before the Southern Illinois Dental Society, Oct. 19, 1892.

In the first place, these preparations are proprietary, their composition is secret. They are wonderful discoveries known only to the manufacturer, whose identity is usually hidden under the name of "The Blank Manufacturing Company." The company, of course guarantees the virtues and the absolute safety of its goods, and pledges you that it contains no cocaine or other dangerous drug, and will furnish pages of more or less illiterate testimonials, both lay and professional. But who are "they," the Company? In making guarantees of such vital importance, it is very pertinent to inquire into the character and scientific attainments of those guaranteeing. How do you know, gentlemen, that in accepting the guarantee of manufacturers whom you do not know, and never heard of, except through their advertisements, you are relying on men for whose scientific attainments or truthfulness you would have a most profound contempt, if you but knew them! And the same may be said about the endorsements. Many of them are honest in their beliefs no doubt. But many of these testimonials bear internal evidence in their bad grammar and unscientific statements of their utter worthlessness. Indeed, the enthusiastic recklessness of the endorsement is usually in inverse proportion to the attainments of the endorser. What weight should be attached to the opinion of any one who feels competent after six or eight weeks' use of a remedy, the composition of which he knows absolutely nothing, to state positively that it is absolutely harmless and reliable, and boasts of the thousands of teeth he was enabled to sacrifice by its aid in that time? If you are thinking of investing any money in the stock of any company or enterprise, as a prudent business man, you investigate most carefully the representations made to you; and the character of those composing the company, as well as those endorsing them, is especially looked into. How much more cautious should you then be in a matter of such vital importance as the adoption of methods and drugs you propose to use on those who trust themselves in your hands, the effects of which might result in casting a cloud over your whole future professional career.

That many of these "absolutely safe" preparations contain cocaine, notwithstanding the guarantee of the manufacturer to the contrary, has been demonstrated time and again, which gives you the right, and makes it your duty to doubt all. Furthermore, to use and recommend nostrums, is wrong and unprofessional. The rule in medical ethics which discountenanced the use of secret preparations, is eminently right and proper, and applies with equal force to the dentist. The patient puts himself into my hands, having confidence in my skill and knowledge, and believing that I will honestly use that skill and knowledge for his betterment, and that it will prevent my doing anything to his hurt. If I administer a secret preparation, I go outside my skill and knowledge. I am blindly experimenting. I am abusing his confidence, and taking chances which I have no right to take. If I do this without his knowledge I am dishonest. If I gain his consent by representations which I do not know to be true, I am lying as well. In either case my action is criminal. No one who is imbued with the proper professional instincts, will ever use or endorse any new, untried or secret preparations coming from irresponsible sources.

This is from the ethical side of the question. Now let us consider the legal aspect. The dentist like the physician is liable to civil and criminal prosecution for malpractice. Malpractice may be defined as the treatment of disease or the performance of an operation, contrary to the accepted rules of practice, whereby the health of the patient may be injured or his life destroyed. It is a strong defense against a charge of malpractice, to show that the treatment was strictly in line with that adopted and practiced by the profession generally, and was that taught by the recognized authorities. The strength of this defense would be by no means impaired, even though subsequent experience were to show that the treatment were incorrect. The law only expects the dentist or the surgeon to be fully equipped up to date. To be either ahead or behind the times involves some risk. Deviations from the regular practice taught by experience are, it is true, being constantly made. Indeed, without such deviations, progress would be well nigh impossible. Nevertheless, such excursions into the untried or unknown, should they be followed by untoward results, subject the operator to the risk of being found guilty of malpractice. The burden of proof is shifted from the plaintiff to the defendant. The operator is bound to show that he was justified in leaving the beaten track for the unknown, which in view of the failure of the treatment, would be difficult. Further, the law does not permit the dentist or physician to experiment with his patient.

Rehfuss, in "Dental Jurisprudence," quotes among other decisions bearing on this point, Patten vs. Wiggins 51 Maine 594: "Should injury result from experimentation with his patient, he can be held liable for the same." Hence whether in trying new instruments, new methods, or new remedies, the dentist must exercise the greatest care and caution. Should he be called on he must be able to explain every step in the clearest manner, and give the strongest of reasons for any departure made from known rules and usages. In the administration of any new remedy, he must show that he is possessed of a thorough working knowledge of its properties, and that such knowledge justified him in using it as he did. It will not be sufficient for him to show that he acted according to his best judgment and on the advice of a brother dentist, but he must show that that judgment was in accordance with that of the best authorities. Now all this applies with still greater force, when the operations are such as may endanger the life of the patient, such as the administration of anæsthetics or the use of poisonous drugs. The dentist must know what he is administering, must be aware of the effects, and be familiar with the antidotes. He must not only have this knowledge, but he must also apply it, and have proper antidotes at hand and be prepared with all the usual precautions to fully insure the safety of his patients. Now then to make the application.

Suppose a patient comes to your office with a tooth requiring extraction. He dreads the pain of the operation. You advise him that you have a most wonderful discovery in the way of a local anæsthetic —that it is absolutely safe—and by its use there will be positively no pain. The patient is but too happy and consents. You use it. In a day or two the patient has pain in his head, which increases in violence. There may appear an apparently erysipelatous inflammation about the face. He grows worse and finally dies. The cause of death may not be quite clear, but his family and friends recollect the administration of this local anæsthetic. They assume at once that you are responsible for the patient's death, and if you are a man of any social and financial standing, you are confronted at once with a charge of malpractice and a suit for damages. The first pertinent question asked you will be "Describe your treatment." You do so, and proceed to describe the application for obtunding the pain of extraction. "What did you use?" You answer; "An absolutely safe local anæsthetic, Nepenthesia, manufactured by the Nepenthesia Manufacturing Company of Smithville, Podunk County!" "What does it contain?" And you are obliged to confess that you don't know, but you know it is perfectly safe because the manufacturer says so, and in an extensive experience of some months you never had such a thing happen before! After such a showing, the gift of prophesy is not needed to foresee that the charge is liable to stick and the suit go against you. Notwithstanding, that it may be a fact, that the remedy used was really perfectly harmless as you imagined, and that you injected nothing stronger than distilled water, with all the antiseptic precautions, and that the cause of the patient's death was something with which you had absolutely nothing to do. But the trouble is you cannot prove it, because you are ignorant of what you really did use.

Now I have purposely assumed a case where the cause of death was not clear, and where perhaps the remedy was composed of nothing stronger than distilled water, but the fact is nevertheless, that many, if not nine-tenths of all the local anæsthetics with which the market has been flooded within the past five years; do contain dangerous drugs and that they are not absolutely harmless preparations. Cases have happened in our own State, where evil and even fatal results have happened, which were directly due to the use of these local anæsthetics, some of which gave rise to damage suits, and indictments for manslaughter. If you must use cocaine or other dangerous narcotics, you should do so knowingly, so that you may use them intelligently. This is due not only to your patients, but to yourself as well. It is necessary for their safety as well as your own.

Do not be misled by the sweeping endorsements of unknown dentists, physicians, bankers, clergymen and editors, who may be and probably are just about as competent to pronounce on the merits of the case, as the Hottentot is to comprehend the theory of evolution. Do not jeopardize the health of your patients and your professional reputation by rashly and ignorantly using preparations coming from unknown and irresponsible sources, even though it may "boom your business at first and you may be able to do up your competitors in great shape," as one enthusiastic individual so elegantly expressed it. Remember, that although you may have had fair success for a long time, the turn may catch you at any time.

Chloroform is used thousands of times safely, but it does kill occasionally all the same.

President's Annual Address.*

By Thos. Morffew, D. D. S.

I am certain that you all must appreciate the pleasure and satisfaction I feel in such an assemblage as is met here to-day. The twenty-third convention, if so I may call it, of the California State Dental Association comprises a body of men equaling in intelligence, in individuality, in their fervor in behalf of a noble profession any other assemblage I have knowledge of. While a larger attendance would have been more gratifying, still we could scarcely expect it. I know how difficult it is for the professional men to leave their duties—our profession is an exacting mistress—and I appreciate the great obstacle distance is to many of our members. It is to be hoped, however, that those assembled here at considerable personal inconvenience in most cases,will reap benefit from our deliberations and that the dental profession will be advanced thereby.

Out of the six hundred (600) dentists it is estimated there are in California, in numbers here we are fairly representative, all things considered, and there can be no doubt the California State Dental Association embraces the ablest minds in the profession in this State.

When our Association was formed many years ago, the position of the legitimate dentists was far from satisfactory. He had not alone to cope with a multitude of quacks, but to bear the brunt of their various misdeeds. The dentist then occupied a subordinate position. The profession offered few inducements to worthily ambitious young men. We were unorganized, without the usual and necessary collegiate facilities for students, without proper legal redress against pretenders. In fact our profession then was under many and grievous burdens, and had not the same public esteem that was given to it elsewhere. From the nature of things, the wealth of the country and the liberality of the people, numberless quacks found dentistry a very profitable calling, and the masses not appreciative of the injuries likely to follow from their hands, patronized them. Unscrupulous in their work, flaunting in their display, they made impress upon the unthinking. The evils resulting from such men were incalculable, and even to-day we sometimes encounter in our practice patients who are still sufferers through their ignorance of the first principles of dental practice.

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* Read before the California State Dental Association, July 19, 1892.

To this association more than any other cause, or union of causes, is owing the gratifying change that has gradually been brought about, since that early day when a few men zealous that their profession should take its fitting rank and inspired with public spirit, with sympathy for the people organized it. From that nucleus it has advanced in power and membership; and that dentistry has equal professional prestige and social eminence in California to-day with her twin sister medicine is owing to it. When I consider indeed what the California State Dental Association has accomplished, I feel that every dentist in the State owes it a deep debt of gratitude. I feel that every dentist in the State should be anxious for membership. I regard it as the fostering mother under whose care and protection we have attained a manhood that places us in line with any professional worker in California, no matter what his sphere of effort be. You are doubtless familiar with the assistance and encouragement this association gave toward the establishing of our dental college, in 1882, the dental department of the university of California. Since then the progress and increase of membership in the college has been most satisfactory.

How warm should be the interest taken in this college by the dentists of California it is unnecessary for me to point out. It is in fact of greater importance to us than similar educational establishments are to other professions. It is the sole representative of dental education among us, the alma mater from whence must come those who in the natural course of events will take our places. We have a very keen interest, therefore, in its well being, and that it now ranks so highly touches our State pride. For myself, in the dental department of our State University, I must always take a hearty personal interest. Very pleasing recollections are associated with it. I am, indeed, the first President of your association who took his degree there. But the interest and sympathy I feel I am sure are shared by all dentists in this State. It is a gratifying fact that our dental college in its faculty, its curriculum, its general equipment, is the equal of any similar college East or abroad, and very superior to many. Its progress toward this approximate perfection has been continuous since it opened. In view of this, and casting aside all questions of State pride, or sympathy toward it, it offers every advantage for students, not of California alone, but of the coast States and territories and countries adjoining, and as the years go on it will undoubtedly have all the pupils from those sections desirous of studying for the dental profession.

In the secondary consideration of expense, there will be a great saving to parents of such pupils in the matter of transportation, etc. The progressive spirit of this college, its aims toward a thorough education are best evidenced in its course of studies. Examination and comparison must be greatly to its advantage, and it would be well if our dentists impressed those facts on all interested inquirers. In nearly all the colleges in the country in the last few years, the period of study has been extended to three distinct years. In some the terms have been lengthened to five months each. Others require seven or nine months. With our college the period is three full years, and it has made obligatory nine months of the year to practical and didactic instruction, and the remaining three months a practical course in the infirmary and laboratory with full course of demonstrators and instructors, this latter differing from the regular course only in the absence of didactic instruction. When we consider all this and the bright ability and diligence of our pupils, the dental profession on this coast has a most promising future before it in the eminence of its members.

The first faculty of this college was selected from members of our association. The faculty whether coming from among us or not should be allied to us and thereby they would be cognizant of and have voice in the framing of any legislation this body should deem it advisable to send forth.

It should be indeed most gratifying that the college is established on such a sure foundation. It possesses all the elements for a great future. The young men attending there are the peers in intellect of any in the State, and just as the medical profession takes pride in many of her graduates and the law in several men who studied in this State, so will the dental profession also be enabled to take pride in many gentlemen who studied under the auspices of the dental department of our university. It most certainly should have every encouragement and assistance from the dentists of California, and the most friendly feeling should be engendered towards it.

In the matter of legal enactments tending to the protection of the people in the profession of dentistry, your association has accomplished very notable work, and I am glad to say it is now recognized as representing the views of the dentists of this State, and it therefore has power to accomplish excellent results. In response to our efforts the State legislature enacted a law to regulate the practice of dentistry in this State, creating a State Board of Dental Examiners. The benefits accruing from this measure must be apparent to all. It will tend to great thoroughness, to greater zeal on the part of students. Naturally a successful examination before such a Board will be a decided triumph. It will be evidence of undoubted proficiency on the part of the licensee. It will convey far more than a college endorsement, and for the reason that the board of examiners is so entirely independent, so unswayed by any feeling of friendship or partiality. No member of it should have any association or interest in a dental college for very obvious reasons.

But for equally obvious reasons should the members of the Board of Examiners be drawn from the association. No other body can possibly take as high interest in the advance of the dental profession. The record of the California State Dental Association is indeed ample proof of the worthy ambition that inspired it and the high principle that governs all its deliberators. Its aims are devoted to the advance of dentistry and to the maintaining of its professional eminence. A board of examiners from our body would therefore most assuredly grant certificates only to those professionally deserving, and to those ambitious of proficiency it would extend kindly encouragement. No fear need be entertained of severity in examination. While the necessary learning would be required, still, such a board having the best interests of dentistry at heart would give incentive to those students who entertained a proper respect for the profession of which they desired to become members. The fact that such a board is now existing has proved most beneficial to the people and practitioners. It is a protection against quackery, and it has led many to seek a college course, who otherwise would have been content with the partial knowledge they possessed of their profession. Others, less persevering, not satisfied that they could meet its requirements have sought other fields, and their absence will certainly not be regretted.

I would here emphasize the harmony that should exist between the California State Dental Association, the California State Board of Examiners and the Dental Department of the University of California. Their relations are most intimate, and they all have the same end in view: to elevate the dental profession, to advance improvement, and to enable the dentist to more closely approximate to perfection in his work. The interest of one must be the interest of all. Let us advance hand in hand, shoulder to shoulder, and let that old patriotic motto of the nation's be ours also, "in our union is our strength."

Some few beneficial alterations might be made in the dental law. I would respectfully recommend the expunging of section four (4), which reads as follows:

> SEC. 4. Within six months from the time this act takes effect, it shall be the duty of every person who is now engaged in the practice of dentistry in this State to cause his or her name and residence, or place of business, to be registered with said Board of Examiners, who shall keep a book for that purpose. The statement of every such person shall be verified under oath before a Notary Public or Justice of the Peace, in such manner as may be prescribed by the Board of Examiners. Every person who shall so register with said Board as a practitioner of dentistry, shall receive a certificate to that effect, and may continue to practice as such without incurring any of the liabilities or penalties provided in this Act, and shall pay to the Board of Examiners for each registration the fee of one dollar. It shall be the duty of the Board of Examiners to forward to the County Clerk of each county in the State a certified list of the names of all persons residing in his county who have registered in accordance with the provisions of this act, and it shall be the duty of all the County Clerks to register such names in a book to be kept for that purpose.

Of course this was a very necessary provision when the bill was passed, but it is no longer a necessity, not even a benefit, but rather a detriment.

Sec. 6. reads as follows:

> SEC 6. Any person who shall violate any of the provisions of this act shall be deemed guilty of a misdemeanor, and upon conviction, may be fined not less than fifty dollars, nor more than two hundred dollars, or confined six months in the county jail, for each and every offense. All fines recovered under this act shall be paid into the Common School Fund of the county in which such conviction takes place.

I think this section could be improved by being amended so that the informer would receive one-half of the fine and the school fund the remainder.

I would again call your attention to the great benefit derived from such an association as this is. So as to extend this benefit we should reach out for a larger membership. The great progress made in dentistry of late years is due indeed in great part to dental organizations. We must appreciate the advantages and benefits derived from enterchange of experience. There are wise lessons for all in the practice of each. We thus frequently learn in one short hour that which has taken years of hard work and close application to discover and prove. In association we hear advanced and discussed new ideas, new methods, various discoveries and inventions. We learn the result of laborious experiments. We profit by the labors of many eminent men. There is also a social side in such association which is important, through the harmony and union it engenders. And for the same reasons besides this State Association there should be local societies formed in each district where there are a sufficient number of dentists. We would be brought into very close relation thereby, and could act promptly and with unanimity on any question touching our profession.

In this connection I would call the attention of members to the advisability of sending reports to this association of such matters in their practice as they might deem worthy of attention from this body. We all have special experiences in practice. Incidents out of the ordinary at times occur, and it would be well that these be noted for the information of your association. There will be presented at this meeting for your careful consideration many theses. They are all open for discussion. It it for you to approve or condemn. They will contain many ideas new and profitable. You are expected to discuss them impartially "Hew to the line let the chips fall where they will." By these papers will you be enabled to judge of the advancement of dentistry during the year. I would also call your attention to the advisability, I might indeed say the necessity, of establishing a dental journal in this State. Our constituency is certainly large enough and possessed of ample means to afford a proper support for such an enterprise. We are far apart from other populous communities and the conditions here are different. No eastern journal properly meets these conditions. All eastern journals are to some extent foreign to us. The good such a journal would accomplish must be evident. It would be the medium for all matters of importance to the dentists of this State and coast. I would earnestly invite discussion on this suggestion.

It becomes my sad duty to announce the sudden death of one of the pillars of our association, Dr. James J. Birge. He was called from among us January 11th, last. Dr. Birge was one of our oldest members, having been one of the first to sign the roll of membership in this association. In it he has held various positions of honor and trust. He was for many years Treasurer, and was only displaced to be elevated to the highest position in your gift, that of the Presidency, which office he filled with honor to himself and credit to the association. Dr. Birge was a man of sterling worth and integrity. His many years of service as Treasurer earned for him the sobriquet affectionately bestowed of "Old Honesty." He had the love and respect of his fellow practitioners, always acting honorably in all transactions, and he was without enemies. He earnestly sought truth and knowledge, and was ever ready alike to receive or to impart, and was always courteous, affable and painstaking. Dr. Birge was punctual in his attendance at our sessions, and has probably sat oftener with this and the San Francisco Dental Association than any other member.

Dr. Birge was another of those pioneers of this State, who when the blood was young and ambitions pointed the way, embarked on the venture to the land of gold, and recked not the peril of the way or the uncertain future before him in the new land. He was also one of our pioneers, by whose industry and indomitable will power the State was built up and made one of the grandest in the union. He was likewise among those who, by their pure and christian lives, brought honor to it and to themselves. Dr. Birge was well known and highly respected in our community. The following sketch of him, therefore, brief though it be and unfinished, will be interesting.

Dr. James J. Birge was born near Cooperstown, N. Y. He was of English ancestry in the remote past. Two hundred years or more ago his forefathers came to this country, and since that time his people have frequently held eminent and distinguished positions in New England and the Middle States. To-day they hold rank among the leading citizens of these sections of the country. The grandfather of Dr. Birge, James Birge, was a lieutenant in the war of the Revolution, and served his country well. Desiring to fight for his country, he volunteered before he was eighteen, and was allowed to enlist. His promotion from the ranks was for his gallantry in the field.

His father, James Birge, Jr., was engaged in mercantile persuits in the city of Albany, N. Y. On retiring from business, he purchased a farm some six miles from Cooperstown. The farm having excellent water power, buildings were erected for mill purposes, and used in manufacturing woolen cloth, woodenware, etc., for that section of the country. He also carried on the farm work. For a long period he was the presiding justice of the district. Dr. Birge's father's brother, Lemuel Birge, graduated at Yale College. He was eminent as an Episcopal minister. He resided in Wickford, R. I., and afterward in Brooklyn. His son Hobart, who is now a resident of Brooklyn, was for a long time President of the Long Island Medical Society.

In the last war the Birges' did effective service for their country. Henry W. Birge was one of the famous commanders of the army of the Shenandoah. He died in New York. At the surrender of Port Hudson, La., in 1863, to Gen. Banks, he was Colonel commanding the Fifth Brigade, Grover's Division. Another cousin raised a regiment of sharpshooters in St. Louis. Dr. Birge himself volunteered for the Seminole war, having joined the Tallahassee Guards.

Dr. Birge attended school in his native place, and being naturally of studious habits, advanced quickly in knowledge. While he was yet young, however, he went to Florida, locating in Tallahassee, and there he engaged in mercantile pursuits. He erected some of the finest stores in that city, and besides carrying on a large business in general furnishing goods, hats and caps, boots and shoes, etc., he also manufactured on his own account. Later on he showed a desire for the profession of dentistry, and in consequence entered the office of Dr. Cross, in Tallahassee. During his residence in Florida he was intimate with such men as Gen. Reed, J. D. Westcott and others of the old families, and the association with men of such high principles as theirs naturally had marked effect on his life. His bearing and manner evidenced the influence of old school courtesy. In 1838 Dr. Birge and Dr. Cross determined to go on a trip through Central America in the practice of their profession. Dr. Birge being in ill health at the time, the project was abandoned. He made a voyage to Europe to recuperate, and at Paris became acquainted with Morse, the great electrician, with Gen. Henderson, of Texas, then Minister to France, Gen. Hamilton, of South Carolina, and other noted men. This was in the time of the citizen king, Louis Phillipe, and he had frequent opportunities of studying the social condition of the French people from the standpoint of the then government. When he returned, in 1840, he went to Florida, and afterward going to New York, he was there when the news came of the gold found in California. Like others, Dr. Birge resolved to come. His health had been partly restored, and the voyage promised to do him great good. He accordingly took passage on the Harriet T. Bartlett, leaving New York January 17, 1849, for the Chagres river. He made the trip across the isthmus, and at Panama purchased the brig Feliz, and accepting some sixty passengers, started for San Francisco. On account of heavy fogs and contrary currents the vessel landed unexpectedly at Santa Cruz, however, and was nearly cast away on the beach. Dr. Birge with eight companions secured horses there and at once started for this city. The vessel reached Santa Cruz July 4, and a few days later they arrived here. His vessel having also reached here he took quite a number of passengers and freight and started for Sacramento. Upon his arrival there he sold her, and his next enterprise was the building of the New York Hotel. The fire of '51 totally destroyed the building, however, which was not insured, for then we had no insurance companies in operation here. He at once rebuilt, however, and fittingly named the new hotel the Phœnix. He also erected opposite, a fine three-story brick block. Unfortunately in 1852, November 2, fire again destroyed his property. He again started to rebuild, and his contractors had just put on the floors and roof, when the great flood destroyed his work.

Naturally disheartened after all these visitations he left Sacramento and came to this city to practice his profession. He formed a partnership here with Dr. Stocking which was dissolved in a short time, however, the latter going East. He continued alone and was rewarded for his ability in his profession and superior attainments by a good practice from our best people who regarded him with warm friendship for his sterling qualities. By his brother dentists he was also honored. He has been President and afterward Treasurer of the California State Dental Association, as also President of the San Francisco Dental Society and Treasurer of the last named body. In 1871, Dr. Birge was elected by the California

State Dental Association a delegate to the American Dental Association, of which association he was also a member for a long time. He was commissioned a member of the State Board of Dental Examiners by Governor Bartlett for the term of four years. Dr. Birge was a life member of the society of California Pioneers. He certainly held honored place in this community, for not alone was he one of the builders of this great commonwealth, but a man of wonderful energy in the face of great reverses, and whose life was an essentially honorable one in every relation with his fellow men.

The scythe of time has also gathered to the harvest another of our old time members. Dr. E. F. Bunnell, who was at one time a very prominent and active member of the association. Dr. Bunnell was well advanced in years and long ago retired from active membership, but he was borne upon the roll as an honorary member. He usually attended the annual sessions, and at times took part in the discussion. His demise closes a long, useful and honorable career.

At the proper time a committee will be appointed to express the feeling of this Association in regard to both gentlemen.

In conclusion I need not say how sincerely I hope our present deliberations will result in as much benefit, proportionately, as previous meetings of the Association have done. There is no doubt that we will all derive advantage from this meeting. But beyond this it should be a vacation in a sense, be made an enjoyable reunion to all of us as far as may be. We have sufficient of the serious in our practice. Sometimes it is true there is a comical side, but this is rare. I would invite that side to put in an appearance occasionally here. It is permissible for us to laugh when we assemble together, and I think any member who presents such matter as will enliven our meeting, bring up the humorous side of dentistry, will be deserving of a vote of thanks. There is an old saying about laughing and growing fat. From what I can see the dental profession has no reason to complain of several of its members in that particular. The profession undoubtedly agrees with them. Still there are others who would benefit not a little from a continual treatment of laughing. We all appreciate the bright side of life, and it is very fitting that our serious work should be offset. You know that all work makes Jack a dull boy, and men are after all only boys of a larger growth.

The following resolution was offered by Dr. L. Van Orden and adopted *unanimously:*

Resolved, That the California State Dental Association desires to express its friendship for the only educational dental institution in this State, the Dental Department of the University of California; and to extend an invitation to its faculty and to the senior and junior classes to attend the sessions of this association.

Filling Teeth with Gold.*

By H. A. Costner, D. D. S., Chicago, Ill.

There is no subject, perhaps, that the dentist is more familiar with, both practically and theoretically, than the one about to be presented. So if repetitions occur, be charitable, for it is an old, old story that is being told, a threshing over of ancient straw for the chance of some one seeing a new grain of thought, which will lead to greater effort, day by day, to reach the highest possible perfection in dental art.

It will be no useless effort if this paper produces one new idea in a single mind or arouses one man to greater effort.

Surgeons point with pride and pleasure to the fact that the Creator performed the first recorded surgical operation when he caused a deep sleep to fall upon Adam, and he took one of his ribs and closed up the flesh thereof. But when the earth was void and without form, God filled the fissures and cavities of the rocks with gold, and they have endured from that day to the present time.

The first mention of gold in the Bible is found in the second chapter of Genesis, and eleventh verse:

10. And a river went out of Eden to water the garden; and from thence it was parted and became into four heads.

11. The name of the first is Pison: That is it which compasseth the whole land of Havilah, where there is gold; and the

12. Gold of that land is good.

Gold was then as now, the first metal in value to man, the most beautiful and the most sought after. Its intrinsic value was known to every people of whom we have a history.

When Aaron led the children of Israel through the Red Sea he was clothed in a robe of spun gold and fine linen.

Moses' Golden Calf.—The skill and knowledge required to refine and make gold into threads would be necessarily high, and this the ancient Egyptians possessed without a doubt. It is said of an ancient people—the Etruscans—that they wore elaborate jewels and ornaments made by welding pellets of gold, one to the other, into the designs they wished—in about the same way cohesive gold is welded in filling teeth.

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* Read before the Chicago Dental Society.

It is useless to follow this digression further, as it could be made to take in every country and people upon whom history has shed its light. Suffice it is to say, that Biblical as well as profane history records the fact that the ancients were as well versed in refining and manipulating gold, and were as fully acquainted with its beauty and value as we are at the present time.

It is not known what were the methods in use by the Egyptians, Greeks and Romans for obtaining the thin leaves of gold they manufactured, but it is probable that they did not differ essentially from the simple processes now practiced, which were brought to their present perfection by continued experience and the application of a moderate degree of skill.

The earliest recorded notice of the mode of preparing gold leaf is that of the German monk, Theophilus, in or before the twelfth century from which it appears that parchment was used as a covering of the gold during the hammering and the leaves were prevented from sticking by the application of red ochre or chalk. What is known as gold beaters' skin is now used instead of parchment, and is obtained from the cæcum of the ox.

Crystal gold or sponge gold is a precipitate, produced both by chemical and electric agents. Both forms are highly cohesive when annealed.

Leaf gold or foil is furnished the profession either soft or cohesive, and is made when sold or can be made before using, into various forms and thicknesses to suit the taste or requirements of the operator.

Soft or noncohesive gold was the only variety used by dentists during the early morning of our day of the profession, and is still in use by many practitioners of skill and long experience.

The virtues of cohesive gold were brought to light, explained and advocated by Dr. Arthur in 1857, since which time there has been much discussion, difference of opinion, and practice, as to the merits and demerits of the two.

As to soft gold, little practical knowledge is in possession of the writer. If a perfect filling of soft gold, from medium to large size, has ever come within his observation, it was not recognized as such. This form of gold, as a filling material, has a well-deserved place in history, for the good it has done in the hands of the pioneers of American dentistry. But in the operations of to-day, it should be relegated to innocuous desuetude.

The combination of cohesive and soft gold has proven a delusion and a snare in his hands.

Soft gold makes an unsightly filling in the front teeth especially, with its pitted, dull surface.

Cohesive gold is the beauty and glory of modern dentistry, and its judicious, intelligent and artistic use has placed our beloved calling upon the high plane of usefulness and respectability it possesses in the estimation of the learned professions and the public at large.

When a filling is to show at all it should be exposed sufficiently to show what it is. A gold filling in shadow looks no better than an amalgam filling, or no filling whatever, as the surface appears black. It is a pleasure to look at a beautiful gold filling.

It is not considered within the province of this paper to enter into a description of the variations incident to filling a variety of cavities in different parts of the mouth, but we will be contented by presenting a cavity in the distal surface of a right superior central incisor: After the patient is comfortably seated in the operating chair, a close examination discloses decay, extending well up, under thin enamel, on disto-labial surface. Enamel on disto-lingual surface too thin to save.

A naught file is passed between the teeth—rubber dam adjusted, with three teeth exposed—the two centrals and right lateral. With a sharp strong chisel the enamel is cut well away on disto-labial side, giving plenty of room to work and an unobstructed view of the cavity. Disto-lingual side trimmed down to a smooth, strong edge. The points of the cavity, cervical and cutting, are shaped with a bur or other suitable instrument. The cavity now presents a regular oval anterior view, with a slight curve on opposite aspect, surrounded by healthy pearl-colored enamel. The chalky colored enamel points to imperfection. The cavity is slightly grooved all around with a sharp bur of suitable size and shape. Much time is saved to the dentist and pain to the patient by having the bur sharp.

Three points in the cavity are deepened into pits, one for starting the filling, the other two for holding the filling more securely in place.

The starting point is drilled into the thick part of the cervico-lingual part of the tooth, one in the cervico-labial and one in the direction of the cutting edge. In no case should a retaining point or pit be drilled in the direction of the pulp. The drill should be held in such a position that if a hole were bored entirely through the tooth it would not touch the pulp.

The edges of the cavity are now polished with emery cloth finishing bur, or corundum point, the dust blown out and the cavity is ready for filling.

For the commencement and filling of undercuts Watts' Crystal Gold is used on account of its more perfect adaptability in small places, lying still where placed, and cohesive qualities.

A pellet of this gold is selected small enough to enter easily into the cavity, it is picked up with the foil carriers and passed through the flame of a spirit lamp, and then placed in the cavity. An almost straight small pointed slightly serrated plugger is used to pack this piece of gold into the commencement point and firmly lodge it there by hand pressure. It is packed, gently at first, then the hand mallet is used to further solidify the gold by welding it more perfectly.

In regular order from the starting point, each piece of gold is added with small pointed instruments in all cases in large or small cavities, with hand pressure against the dentine and enamel, then the hand mallet until the pits and undercuts are filled and the cavity lined. A suitable corkscrew pointed instrument is used to turn the gold into the pits near cutting edge of cervico-labial point. Many enamel corners of the incisors have been cracked by the use of the Snow and Lewis plugger. It should be used with great care.

To complete the operation, No. 4 cohesive gold, 1,000 fine is used in this wise: Four sheets are laid one upon the other on a suitable pad used for the purpose, and with a gold spatula folded over a little more than one-fourth the length of the leaves upon themselves, then folded in the other end in the same manner. The four leaves are now doubled with the edges or ends slightly lapping each other. Fold once more from the center which doubles it once more, making it sixty-four in number, with the thin edges in the center. It is now cut in narrow or wide strips to suit the cavity being operated upon. There is no flying up or loosening of the thin edges when folded in this manner. As the strips are taken up they are passed two or three times through the flame of a spirit lamp bringing them up to a red heat each time. This thoroughly anneals the gold. For completing the filling with this form of gold the Bonwill mechanical mallet is used armed with a very narrow foot instrument when completed. The double nought file cuts space enough to finish the polishing with C emery cloth, then finer grades until pulverized pumice stone and strip of chamois skin leave the filling without scratch, pit or overlapping edge. The tooth has its contour restored and we consider that a perfect dental operation has been performed.

It is a rather hazy idea perhaps, but I consider honesty the best policy.

PARTIAL DENTURES.

BY E. M. S. FERNANDEZ, D. D. S., CHICAGO, ILL.

The subject of partial dentures covers so many different kinds of work and so much ground, that it would take a large volume in order to write all that should be said of importance on this subject.

For this reason I have decided not to go deep into the subject, but only bring out a few points which may be of interest to the society; hoping that you will pardon my inability, and bring forth in your discussion, the volume of knowledge in your possession. If you please, let us first take in consideration some of the most important requisites for success in the manufacture of a partial denture made on a plain rubber base. A good impression of the parts to be worked upon; that is to say a good model, as perfect a duplicate of the parts in question as can possibly be obtained in its mechanical movements, as well as in its forms or shapes. A good selection of teeth should be made in their shape, size, color and shade; they should match in these particulars their mates on the opposite side of the arch, as well as the adjoining ones. They should be ground to fit neatly against the gum and made to look as if they grew out of the bone itself. Articulators for this kind of work (partial dentures) should be made in imitation of the human jaws, in their shape as well as in their mechanical movements, and should also be adjustable, so that their size may be altered when desired. Such an instrument may enable us to reproduce a good and accurate articulation between the artificial and natural teeth.

Much should be considered in the manner in which the teeth may be made to articulate during the function of mastication, they should then strike in such a way as to press the plate to its place instead of throwing it off from its suction. All these requirements I consider essential, and may be applied to the manufacture of any and all partial dentures.

A simple artificial dental crown, whether all gold or porcelain faced may be considered a partial denture, if you please, but as I have read a paper on dental crowns to this society previously, will not tire you with a repetition of the same.

What we term in dentistry as a bridge, may also be a partial denture. When made well, and judiciously studied, it is the handsomest and most beautiful kind of work that mechanical dentistry ever produced. The most useful and welcomed partial denture the human mouth ever received from the hands of honest and skillful dentists.

In many cases a bridge may not only supply some of the unfortunately lost natural teeth, without the many great inconveniences of wearing a plate, but it may at the same time unite and affirm several loose and almost useless teeth. In such cases a bridge is of great benefit by uniting the teeth and distributing the pressure that may be brought against them during mastication.

"In Union There Is Strength."

And, after all, is it not sad to think that this noble work should be tampered with to such an extent by the quack and unprincipled dentist, using it as a screen to obtain large fees from his patient, giving in return an instrument of destruction and disgust.

Perhaps it will be well to say a few words in regard to the care which a mouth should receive when wearing as artificial denture.

A plate should be removed and carefully cleaned at times, especially after meals, and should never be worn during sleeping hours. Great damage is done to the teeth and mucous membrane of the mouth by wearing a plate during sleep, and neglecting its cleanliness; thereby allowing the particles of food to ferment and decompose beneath, causing *disease* and *decay*.

A plate should be cleaned with some antiseptic or disinfectant preparation, by the dentist several times a year.

The mouth that wears bridge work or crowns should be carefully cleaned after meals and just before retiring. The patient should be directed to use a good tooth powder in combination with some antiseptic and deodorant mouth wash, and rinse the mouth thoroughly with water quite warm.

If patients do not follow these directions they are at fault; we have done our duty.

REFLEX ACTION.

By O. Thompson, D. D. S., Neenah, Wis.

I come before you for the first time in my professional career to read an essay on reflex action. Not that I can hope to teach you anything new, or in fact to explain the matter in any better way than it has already been done by hundreds of abler men than myself who have had to deal with the question.

I simply offer this to you, not that I able to cope with so deep a subject, but to have it brought before you and hear it discussed from the dental standpoint. For that reason I shall endeavor only to explain the meaning of the term reflex action as I understand it, and cite to you one or two cases of reflex manifestation that have come under my direct notice in practice.

Professor George H. Cushing gave our class this definition, which I think covers the ground very nicely.

Reflex action is an outward nervous impulse expressed at some point more or less remote from the point at which irritation was applied to produce it.

According to Kirke, for the manifestations of every reflex action these things are necessary; (1), one or more perfect centripetal nerve fibers to convey an impression; (2), a nervous center for its reception and by which it may be reflected; (3), one or more centrifugal nerve fibers along which the impression may be conducted to (4), muscular or other tissue by which the effect is manifested. In the absence of any one of these conditions a proper reflex action could not take place.

The particular kind of action produced is determined by the construction of the end organ, which is excited to action by the reflex act. If the centrifugal nerve terminates in a muscle there is a contraction of that muscle; if it terminates in a secreting organ that secreting organ is excited to activity; if it terminates in a sensory filament pain is produced.

The principle reflex manifestation that comes under the hand of the dentist is the one where the efferent nerve has its termination in a sensory filament thereby producing pain. Of this class I will now proceed to give to you the two most important cases that it has been my lot to treat.

A little over a year ago a married lady of about thirty-eight years of age, came to me from one of our painless advertising dentists (at one time supposed to be an active law-abiding member of this society), for an examination of her teeth with a view of learning what attention they were in need of, and to see about having them attended to. While making the examination my attention was called to a left superior six year molar containing a large cement filling extending over the greater portion of mesial, and a part of the buccal and grinding surfaces. The tooth, she informed me, had been the source of quite a good deal of trouble to her. Not that it had pained her very much, but that it was very tender and sore to the touch. Especially did it annoy her while eating. She said that nearly a year previous the tooth had been treated, and the present filling inserted by our aforesaid painless dentist who had expected to replace it with gold after a few days; she being quite anxious to have gold inserted, as she had lost the second bicuspid sometime before, thereby the filling was left quite conspicuous. But at the time appointed to have it done the tooth was so sore that she broke the appointment and made another, which was also broken for the same reason. After which she had neglected it till the present time.

She then asked if in my opinion there was anything that could be done for it that would relieve the soreness. I recommended the removal of the cement filling, that we might learn what condition the pulp was in. This she desired me to do, so with the aid of a bur in the engine I commenced to carefully remove the cement. I had gone scarcely half way through the filling when the odor of iodoform became quite perceptible and continued to increase, when all at once the engine stopped with a sudden jerk, and upon withdrawing the bur from the cavity there came out attached to it from the pulp cavity a large pellet of cotton saturated with iodoform, showing the tooth to be pulpless. Upon searching the root canals I found them also filled with cotton in the same condition.

I thoroughly washed the canals with peroxide of hydrogen, and after cleansing them I applied a dressing of the oil of eucalyptus, filled the cavity with gutta-percha, punctured the filling and dismissed the patient. She returned the third day when I replaced the dressing, she stating that the tooth had given her the least trouble she had experienced with it for a year.

Upon the second return she stated that the soreness was entirely gone, that she eats with it with as much comfort as with any of her teeth.

Fearing that all might not be well, another treatment was applied and at the next setting three days later the root canals were filled with chlora-percha and the cavity with cement. Two weeks later there being no return of the soreness the cement was replaced with gold. We usually in treating reflex action have the history and where the manifestation is located before treating, but in this case I did not get the history until after the treatment and cure, as it proved to be, was complete.

The lady told me that since she had had that tooth treated by her former dentist over a year previous, she had experienced a great deal of pain in her left shoulder and elbow, especially upon lying on that side at night; that she was forced to sit up an hour or so every night and rub her arm to get relief from the pain. She had applied to a physician who prescribed for rheumatism without giving relief. The day that the cement filling was removed her arm pained her so that she could scarcely sit in the chair, and it lasted about two hours after her return home, when it had ceased and had not returned. After the second treatment she could lie on that side without a particle of pain, and she told me a few weeks ago that she had not had a return of it since the treatment of that tooth, showing a complete cure of the pain in the elbow as well as the soreness in the tooth.

The next case was of a young lady sixteen years of age, who came to me to have a right inferior six-year molar treated that had been also filled by our friend, the advertiser.

Upon examination I found that the pulp had died under the capping and was in a cheesy condition so familiar to you all, especially when found under a filling. After cleansing and treating until the soreness was gone I filled the root canals with chlorae-percha and the cavity with amalgam. I did not see the patient again for a number of months. One day I met her on the street and during the conversation she told me that she was having a great deal of trouble with her right ear, and that she had been treating with a physician for some time without any relief. She also stated that the tooth I had treated for her was quite sore again. The thought came to me that possibly the pain in the ear was due to the trouble with the tooth, she stating that she nad never been subject to pain in the ear before. I persuaded her to come up to the office with me and have the filling removed, and the tooth treated, which was done. As a result the pain in the ear ceased and had not returned when I last saw her.

These are not as important cases as do occur. You probably have all noticed cases given in the last number of the *Dental Cosmos*, page 570, to and including 572.

There are three very marked cases, where the seat of irritation lay in the teeth the proper treatment of which resulted in complete cures.

Fellow practitioners, does it not stand us well in hand to look well to the work we are doing, especially in the treatment of exposed or nearly exposed pulps. The five cases of reflex manifestations are the results of irritation from teeth that have come under the hand of the dentist. Now if the proper treatment had been used, the trouble might have been avoided, at least such could of been the case with those which came under my hand.

Facial neuralgia in a large majority of cases is a reflex action due to the teeth and a great many of them the result of capping or filling over exposed or nearly exposed pulps.

In my judgment the best treatment for exposed pulps is to devitalize and with careful treatment of the nerve canals avoid the unpleasant results due to irritation produced upon the nerve at that point.

COLLAR CROWNS AND PREPARARTION OF ROOTS.

BY C. W. JONES, D. D. S., ST. PAUL, MINN.

The attachment of artificial crowns to natural roots has probably attracted more attention from the dental profession the past few years than any other subject known to dental art. And in speaking of crowns I mean to include bridge work, for bridge work is nothing more nor less than the addition of one or more crowns, or dummies as they are called, to another crown or series of crowns adjusted to the natural roots; and in my mind requires as little or less mechanical ingenuity for one who has mastered a single crown than does the simplest piece in dental prosthesis.

Dentists have made great progress, and I may say have come very near perfection in the methods employed and results obtained in the construction of crowns so far as is required for appearance, firmness and permanency; but looking at it from a hygienic point of view there is yet room for great improvement, and any of you will be convinced of this fact by looking at the turgid condition of the gums where a crown has been worn for a few years, or even in many cases a few weeks. This is especially true with a great majority of collar crowns. I think I would not be far from right in saying that ninety per cent of gold crowns or porcelain crowns with collar which are a success so far as appearance and being firmly and permanently fastened to the root is concerned, are a failure with respect to leaving the natural parts, in which they come in close contact, in a normal and healthful condition. No one will question the superiority of this kind of crown in point of strength as well as protection to the root from further decay. Yet I hear repeatedly from dentists of high authority the prediction that these crowns will not be put on so universally in the future as they have been in the past, for the reason of this inflammation produced at the gingival margin of the gum from the collar. A condition which finally results in absorption of process, pyorrhœa alveolaris, loosening of the teeth and their ultimate destruction.

"At the annual meeting of the American Dental Association at Saratoga last summer, Dr. E. Parmly Brown related a case where a lady came to his office and asked him to excise and crown a lateral incisor for her on account of a bad discoloration resulting from a large gold filling. The same lady had previously visited several New York dentists, all of whom refused to cut off the crown, knowing that the consequences of putting a band on the root would be worse than to have the gum in a healthy condition, even with a bad looking filling. Dr. Brown, after carefully considering the case, devised a scheme by which he fitted a band of platinum almost in-infinitesimally thin, then burnishing close to the sides of the root and entirely under the gum in front baked on a porcelain tooth. By constructing a crown in this way Dr. Brown considered himself justified in performing the operation, and did so much to the gratification of his patient."

It is very strange that so little has been said or done on this subject of properly preparing roots for the reception of crowns and a fine adjustment of the band at the gum margin with a view to keeping the gum and contiguous parts in a normal and healthful condition. Nothing in dentistry demands finer manipulation. If we take a practical consideration of the subject we will see that our knowledge of anatomy, histology and pathology, as well as mechanical and artistic skill, will be called into play and is necessary for a correct treatment of the case in hand and a proper performance of the operation.

Listen to what is said on this subject by some authors. In August *Cosmos*, 1891: "When the root has been properly shaped by trimming off overhanging points, encircle the root with a stout band, etc." Three whole pages are devoted to different kinds of crowns and methods of constructing them. Evans' "Crown and Bridge Work" has about two pages devoted to the preparation of roots for crowning, and in these two pages he gives a description of root-trimmers which are almost entirely useless. In nearly all instances where illustrations are used the cuts represent crowns in position showing perfect adjustment and finish at the edge of the band and root. This is as it should be, but is not practical or possible by present methods.

The most frequent cause leading to failure of collar crowns may be enumerated as follows:

1. Imperfectly prepared roots.
2. Low caret gold for band.
3. Roughly finished or porous band.
4. Band impinging on peridental membrane.
5. Failure to follow gum margin evenly.
6. Faulty articulation.
7. Failure to restore anatomical contour.

If we bear in mind the anatomy of a tooth we see that the exposed portion of dentine that projects above the gum is entirely covered by a shell of enamel, which is also carried a little below the margin of the gum and is there overlapped by cementum. Now in restoring a broken down crown we cannot do better than imitate nature as closely as possible. The enamel should be entirely removed under the gum, leaving the cement uninjured and allowing our gold band to run up under the gum and the sharp edge overlapped by the cement, as was the case with the natural enamel. In that case we would have no imitation whatever, provided our gold is twenty three caret fine and smoothly polished.

In many cases it will be necessary to not only remove all the enamel, but also cut into the dentine, leaving a shoulder, then a band of considerable thickness can be used, twenty-six gauge or even thicker, thus giving additional strength and rendering a more perfect contour possible. In no case should the sharp edge of the band project toward or come in contact with the peridental membrane, but should fall inside of the line of cement as did the natural enamel. But the smooth surface of the band about one-eighth of an inch from the edge at the point where it leaves the gum margin can be brought to bear considerably against the gum without danger of irritation, and would be beneficial by keeping collections from finding their way up under the free margin of the gum.

It is an important point to preserve the anatomical contour of the crown. We will be aided materially in this by cutting and soldering the band to the shape of a truncated cone, fitting the narrowest portion to the neck of the tooth. In a late number of the DENTAL REVIEW Dr. Black has an essay on "The Proximate Spaces and Gum Septum." The points brought out by Dr. Black are equally applicable to crowns as well as to the contour of fillings. The crown should be so shaped at the proximate spaces as to allow the gum septum to retain its natural position, and should come in close contact with the adjoining tooth near the grinding surface so as to prevent any food from being wedged down at that point and produce irritation.

In preparing roots the gum should be left in as healthy and normal condition as possible. If in reducing the root it is necessary to remove a portion of the peridental membrane the injury will be of a traumatic nature, and will, in all probability, heal by first intention and no grave results are to be anticipated. But the laceration of the gum margin by being ground or chopped up by corundum wheels and the like is an injury of considerable seriousness, the healing of which brings about an extensive cicatrix which contracts and is absorbed on the slightest provocation. Then we have the exposed band and other conditions which I have previously mentioned.

If we were shaping a soft piece of wood or iron perfectly cylindrical in form for the reception of a ferrule we would have no difficulty in getting a perfect joint and a perfect fit with instruments constructed on the principle of most *root trimmers* that are on the market. The tooth as presented to us is of a very dense and varied structure, not entirely cylindrical, and the instrument is interfered with by delicate living tissues, so it is very difficult to prepare a root exactly as we would like to have it for the reception of the band. For this purpose I have devised an instrument illustrated in fig. 1 and fig. 2. The cutting tool C, is concavo-convex in shape, with its inner face cut after the manner of a rasp-file, and tempered to the hardest steel temper. This in its rapid rotation attacks the enamel rods on their ends and easily loosens them along their line of cleavage, the portion above the gum having been previously reduced by corundum wheels. The head is easily detached from the mandrel by unscrewing, to be replaced by another of different size or to be used on a mandrel in the right-angle handpiece. The shield S is interposed between the cutting tool and gum, and is held by the flexible or spring arm B. It closely embraces the cutting tool, and passes forward of its cutting face, but on slight pressure of the instrument against the root the shield passes back, allowing the cutting tool to trim high under the gum. A is a ferrule with an elongation for attaching the shield, and fits over the nose of the hand piece. I have three sizes—one for bicuspids and laterals, one for incisors and cuspids and one for molars.

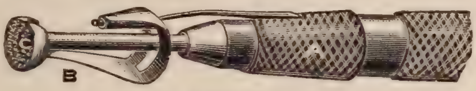

FIGURE 1.

By this principle no attempt is made to remove the shoulder on all sides of the root at once, but one side is reduced at a time so that the original contour of the root can be preserved, or it may be changed to any desirable outline as in 2, of fig. 2, at the same time leaving the delicate mucous membrane—which covers the gum and is contiguous with the peridental membrane—intact.

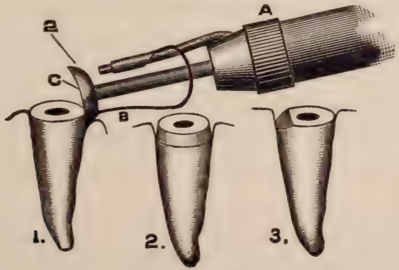

FIGURE 2.

Having trimmed a root in this way, a collar crown or ready made crown, such as the Rynear or Evans seamless crown, can be readily adapted, leaving a smooth and unbroken line of union between root and crown, while the pain usually attending this operation is reduced to the minimum. A root may also be readily faced above the gum margin as in 3, of Fig. 2, for the reception of a Logan or Ludwig crown, leaving the joint between porcelain and root above the gum margin and out of sight.

PRACTICAL REGULATION OF TEETH.*

By A. E. MATTESON, D. D. S., CHICAGO, ILL.

The subject upon which your essayist will attempt to present some thoughts for consideration this evening, is one of vastly more importance to the patrons of our specialty than is fully realized. Just why this condition is permitted to exist by a profession which is usually alive to the necessities of the times, is a conundrum that is difficult to answer.

To fully cover the ground of my subject, would take more time than that allowed for this evening, so we will only attempt a very small portion which is but sparingly alluded to in our text-books, that of correcting irregularities occurring in early youth, and the entire literature on this particular subject of practical value could be contained in one or two pages of the *Dental Cosmos*.

This territory I propose to invade. The "best age for correction" given by our standard authors on this subject, is as follows:

Kingsley, Farrar, between twelve and eighteen; Guilford, between thirteen and eighteen; Talbot, between twelve and fourteen.

P. 61, Kingsley's Oral Deformities—"It may be assumed that as soon after eruption as it becomes certain that an irregular denture is inevitable there is no longer justification for delay, and that after that period every year increases the difficulties, both mechanical and pathological, and prejudices the stability of the dental apparatus, consequently if at the age of eight years, one of the sup. centrals has locked without, immediate interference is demanded. There can be no good reason under ordinary circumstances for delay.

"Every week strengthens the partially formed root in its unnatural position, and the occlusion of the lower teeth will prevent, by any possibility from assuming its true place unaided. It might be argued in favor of postponement of action that some of the other teeth may develop irregularity at a subsequent period and the necessity might again arise for aid, but the answer to this that there is less liability for the others to come in crowded if the front ones are in line, and again it is impossible to foretell irregularities that may need appliances for correction. * * * If it is clear to the dentist that mechanical interference is inevitable it is better usually to begin as soon as they have emerged sufficiently to get a bearing on this surface, as the movement of teeth is comparatively easy at this age and for one or two years following, but at 17, 18 and 19 the action is slower, growing more and more difficult, and in cases where a considerable number of teeth are to be moved the result becomes more and more doubtful with advancing years."

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* Read before the Chicago Dental Society.

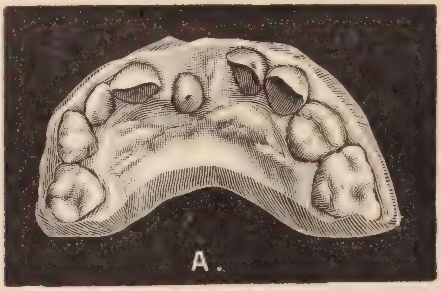
In all a normal condition of health governs. Let us be governed by the same condition, but erase the age rule or law, and let this practice prevail. As soon as a tooth or teeth, erupting, shows such misplacement, that natural conditions or causes will not make it or them self-correcting, mechanical means should be at once resorted to, no matter what the age. Cases will rarely occur, where teeth, deciduous or permanent, are not present sufficient for anchorage or fulcrums for all the appliances necessary, if the case is presented at the time indicated above.

There has been so little written on this that it cannot be taken for granted that you are in advance of the teachings, and your attention is called to the forms of the deciduous molars, the crowns projecting but slightly through the gums, permitting an accurate impression being obtained, the roots diverging and thus affording resistance equalled by no other teeth in the mouth. We have at this time teeth erupting above and below; the four incisors presented in any abnormal position possible. Their course may be deflected by delicate appliances attached to caps covering the crowns of these molars, and cemented thereto; being so thin as not to disarrange the articulation. The effect would not be discernible upon the molars or but slightly inconvenience the patient while the erupting tooth or teeth are moving into line.

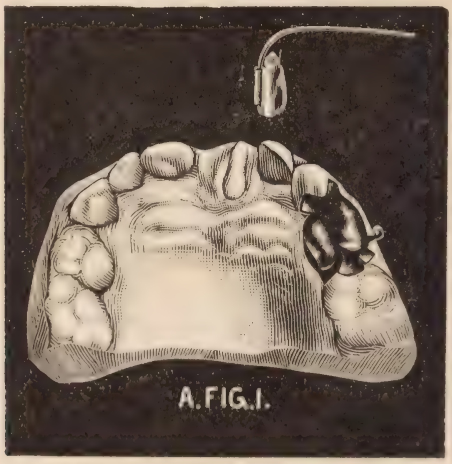
This procedure may be undertaken at any later time, under the rule before given, the only requisite being fixed anchorage; preference being given to light (weak) springs for teeth not fully developed, and later the same, with or without the screw principles (the positive intermittent method.)

Plates made of rubber and covering the roof of the mouth for correcting irregularities are an abomination, a delusion and a snare. I can conceive of no irregularity that cannot be more comfortably corrected, both for patient and operator, by other means. That satisfactory result mentioned by the authors, from the use of the "inclined plane," in no single instance has been demonstrated in the practice of your essayist.

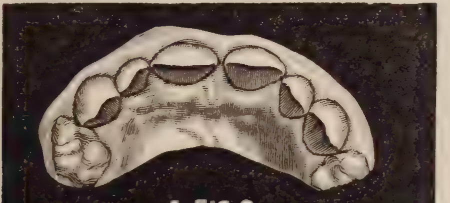
To illustrate more fully the practicability of early correction I shall present for your inspection the casts of several cases from actual practice.


A.

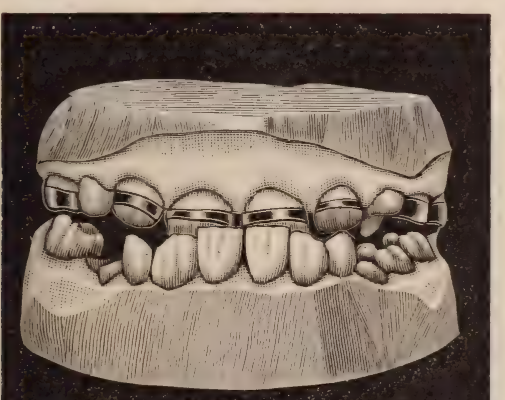
Case A, age 5½ years. This case had been under my care upon the first presentation of the supernumerary tooth, too early to feel satisfied that it was a supernumerary. This was extracted, an impression taken and the tooth placed in impression, and cast A made.


A. FIG. I.

Several months later, cast A 1 was made and a duplicate of Melotte metal, on which caps of gold and platinum plate covering the tips (and extending slightly under the gum) of the erupting central incisor, to which was soldered a tube. A cap of the same metal was swaged over the right deciduous molars with a hook on the anterior buccal surface. A small spring wire was formed, one end passing into the tube on the central, extending in front of the left lateral and cuspid, and sprung into the hook. The tension was very slight. The caps and spring are attached to cast A 1. The wire was bent from time to time until the tooth was brought into line. Six months later the right permanent central presented in the same relative position, and was managed in the same way resulting in position shown in cast A, 2.



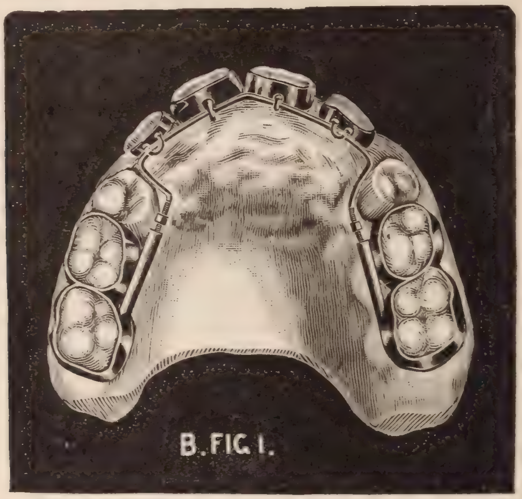
A. FIG. 2.



B. FIG. 1.

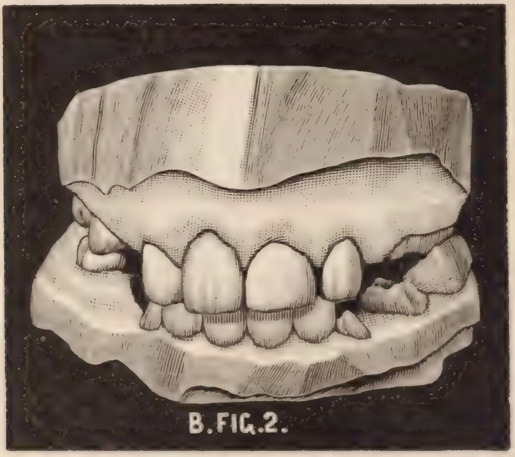
Case B, age 9. The appliance as affixed thereon (see casts B, 1). Rubber ligature wrapped around the wire, posterior to the centrals, and hooked on to the lugs attached to the bands of the laterals, produces results as shown by cast B, 2.

The case of prognathism would have proved a most difficult case to correct if postponed until later years, but was corrected with but little more effort than that attending the correction of a single tooth. And the apices, undoubtedly, carried forward to a greater extent than it would have been possible had the correction been thus delayed.



B. FIG. 1.

A word of caution in correcting a number of teeth of this character: Make haste slowly. It should be born in mind that teeth erupting require but a slight obstacle to deflect their course;



B. FIG. 2.

that an excessive pressure would, without much pain, result in the loosening of the teeth, to such an extent that they might by a slight accident be easily dislodged when unsupported by adjacent teeth.

PROCEEDINGS OF SOCIETIES.

CHICAGO DENTAL SOCIETY.

Regular meeting December 6, 1892, Dr. J. W. Wassall, President, in the Chair.

Dr. E. M. S. Fernandez read a paper on "Partial Dentures.

Dr. E. L. Knapp (opening the discussion): The paper we have just heard is a good one, and some of the points brought out are well taken. Of course, we all know that unless there is a good impression of any kind of denture, it is impossible to make a good fitting plate, especially a partial denture. I take impressions with modeling compounds, and find I have better success with them than with plaster of Paris. The teeth sometimes are to be pitched toward each other, and the plaster breaks away, and I do not have the success with it that I do with modeling compounds. I also use clasps with partial dentures, and instead of making a denture to cover the whole surface, I make it only on one side. If the patient has two teeth out on one side and none on the other, you can make a good and serviceable partial denture by using a clasp, and the roof of the mouth will be free for articulation, and you will have no annoyance with the rubber or metal.

With regard to the wearing of plates at night, I find it is very difficult to tell patients that it is injurious; they do not seem to realize it, and will still continue to wear the plates at night when you expressly tell them otherwise. But in a new partial denture, I think it is advisable for them to wear a plate a few nights until they become accustomed to it.

Dr. R. B. Tuller: In regard to patients wearing plates at night, I think there are cases where it is a necessity for the patients to do so for their own comfort. This does not apply to partial dentures. There are cases when all the teeth are out and when the plates are out the muscles draw the jaws together, often creating a strained and uncomfortable feeling. I had a patient not long ago whose first plates, upper and lower, were made too short, and he said he got in the habit of carrying a pencil between his teeth to ease his jaws.

We have instances, too, where the scattering teeth that remain in the jaws do not occlude, but passing between, strike the gums instead, making them sore and tender. This is often noticed with four or six lower front teeth left which strike the upper gum unpleasantly. In these cases the patient had better wear the plate nights.

Dr. E. J. Perry: I have a suggestion to make about partial dentures. It is assumed that anybody can make a rubber plate, and it seems like wasting time to talk very much of what we should do in the manufacture of partial dentures of rubber. I adhere to a few general principles, one of which is, I always use plain teeth, when possible. In partial plates of gold, I have been very much bothered in years past about the teeth breaking off. The correction of that difficulty is an excuse for my talking at this time. I make the teeth, as I would make a dummy in a bridge case. I select porcelain facing the same as I use in bridge work, then I select an artificial tooth, for making solid gold cusps. You will find the cusps of natural teeth are so pronounced that they are not practical to use; but take an artificial tooth and produce a solid gold cusp, back up your facing, and grind it to place on the model, and then set it against your gold cusp. Invest it and fill the space behind as you would a dummy, grind again up to your plate and solder; your metal will never break, and it will be a beautiful case. There is no danger of the porcelain breaking off.

Dr. J. H. Woolley: I hope that Dr. Fernandez, in closing the discussion, will bring out the point in regard to the management of the color of the teeth, as far as selecting it in harmony with an artificial tooth in color with the rest of the teeth. We know sometimes, either in a porcelain crown or a partial gold plate, that the teeth change color after they have been heated. The question I want answered is—and it might be of benefit to us all, particularly those who are not very much experienccd in artificial work--how he selects his color. One tooth or teeth may be selected, so that they are perfectly natural and you can hardly discolor them; from the fact that they have gone through the fire they change color. Undoubtedly he can give us some light in regard to the matter, or give us his experience. Furthermore, I would like to have him give us his experience in regard to taking impressions, whether he uses wax, or wax as the impression cup, and then use plaster in that impression cup, or whether he uses plaster and wax combined; or, if he uses wax alone in preference to plaster, and why he does it. Then also, in regard to the articulation of teeth, the relation of the upper teeth to the lower, partial or full sets, the relation of the teeth to the jaw, etc., how he articulates them to avoid sometimes the misdirection of the plate in relation to the jaw, and how he avoids irritation. There are a great many plates that are well fitted that cannot be worn comfortably because of poor articulation.

DR. NELS NELSON: The changing of color in soldering teeth is due to not knowing how to use the blowpipe properly. We will find that every man who is not accustomed to the use of the blowpipe puts on a fine flame blowpipe, because he is afraid. When you use the blowpipe for the full force, heat it until it flows of itself, then you need not be afraid of the teeth changing color. The changing of color is because you put too much strain on a certain place. I have made a great many plates during my experience. In making partial plates, I shall follow the previous speakers with two teeth on one side. I never use a plain tooth if I can find good gum teeth, consequently I never make a partial plate with clasps on it with rubber, because the clasp in my opinion is always detrimental to the natural teeth. If you do make them, as you do sometimes, on a gold plate, you will have to make the clasp high enough on the thick part of the tooth and not around the margin of the gums. As far as rubber plates are concerned, I always make a suction plate and file the plate away from the neck of the teeth so that no uncleanliness will collect in the corner.

[In speaking of articulation of teeth Dr. Nelson illustrated his remarks on the board.]

DR. W. C. WEST asked a question similar to that of Dr. Woolley's relative to the different shades of teeth to correspond or harmonize with those in the mouth, to which Dr. Fernandez replied that his paper covered the point.

DR. C. S. CASE: I would like to say that Dr. Fernandez is right in regard to the color and selection of teeth. I did not expect to say anything on this subject, because I have a great deal to say about artificial dentures every few days, and of course it is a sort of routine business that one gets tired of; but the discussion is a little different from the general line. It departs from the mechanical; it goes into the artistic, and when we attempt to lay down mechanical rules for the selection of color we make a mistake everytime. When Dr. Fernandez says he tries one tooth in and then another, he does just what every man must do who selects his teeth properly. It is impossible to determine, when you are looking at a tooth, whether it is the right color or not for that particular patient until you have placed it in the mouth. If you look directly upon the teeth with the view of following some one's directions, or some specific method laid down as regards temperament, complexion, etc., you will make a mistake. It is very hard for us to realize the amount of knowledge that we have obtained by observing natural things. From childhood we have incorporated into us certain ideas of shape, size, and color of natural bodies. It is impossible for a person to tell why an artificial denture is artificial in a person's mouth, and yet they know it is for some reason. It is different from teeth they have been in the habit of seeing day after day. The reason why an artist is not a good critic is because his mind is engaged in the detail of a painting. He cannot get beyond the mechanical system by which he has produced the picture. He does not look beyond the canvas, but another man comes in, who knows nothing about these things, and sees the picture in its perspective; he knows nothing about the little details of construction. His judgment is based entirely upon his intuitive ideas of natural objects. There is no rule in regard to the selection of color of teeth that will hold good; there is such a difference in race, admixture. For instance, mulattoes and negroes almost invariably have yellow teeth with a darker yellow line next to the gum; whereas other races that are equally dark, such as Spaniards and creoles will have bluish teeth. The race admixture of these people will make it difficult for any person to determine the color of teeth until they have tried them in the mouth. The way I do in selecting teeth is this: I select what I believe to be as nearly correct as possible, and then I place it in the mouth, and possibly the one I supposed would be the correct one to use is way off. I lay it one side and take up another that I did not suppose would look as well and as natural and place it in the mouth, and find that it is nearer right. In regard to the discoloring of artificial teeth in the process of soldering, you are doubtless aware that there is a great difference in the fusing points of the material with which they are constructed; some being effected by heat far more easily than others. The trouble that is mentioned, however, is largely due to ignorance and lack of skill. Usually the investment is too large, and then the heat is brought too quickly upon the solder before the entire mass is uniformly and properly heated throughout, concentrating a small pointed blaze upon the tooth and solder, and before the solder flows the heat at that point has been raised above the fusing point of the enamel and mineral coloring matter of the tooth.

Dr. I. A. Freeman: An experience of twenty-five years has taught me something with regard to the use of the blowpipe, and in reference to the remarks that have been made in reference to its use, that of using a pointed or large flame, I will say very much depends upon what is the matter. Some points you would not be able to reach with the larger flame and fuse your solder. It must be concentrated. You would have a reflected heat that will not do the business, and it occurs to me here how much has been done in the past few years to aid us in the using of metals. Twenty-five years ago we supposed we had to have a furnace by which we could raise the heat sufficiently before we placed it under the flame of the blowpipe. Now we have solders that flow so readily that it is certainly, comparatively speaking, not difficult to solder a case. Thanks to our good manufacturers for these.

One word in reference to the use of materials. Nothing more need to be said about the selection of teeth. One's judgment comes into consideration here. When, where, and how comes in for consideration? It seems to me that one particular class of dentures, that of the lower partial dentures, where the bicuspids and molars have been removed and considerable absorption has taken place, it requires a very different material than it does in those of less advanced absorption where the teeth are scattered. I believe we should combine in such plates gold and rubber, the rubber to restore the lost portion, and the gold to give strength and to occupy less space in certain parts. We have as a profession dodged this question. I have not seen in my practice many people coming from different parts of the country and coming to me particularly of late wearing partial lower plates, yet I have in my own practice several of them that are serving a very good purpose. I believe they should be used where bridge work cannot be attached. I think, perhaps, some light might be thrown upon this question by those who have used bridge work. When is it proper to rest a piece of bridge upon a mucous membrane? I know some of the gentlemen present have had a large experience in this direction and could offer suggestions that would be profitable if they would do so. Do you find the using of these points of rest upon the membrane practical?

Dr. Fernandez (closing the discussion): My paper was confined to partial dentures. That was the text given to me, and not the manufacture of any kind of work. Dr. Tuller says in some cases it is best for patients to wear plates at night in order to rest the jaws. There is no rule without exception; there may be exceptional cases where a person may wear a plate at night in order to rest the jaws, but they ought to be perfectly cleaned before retiring, and perfectly cleaned after rising. In my estimation more sickness or disease comes from uncleanliness of the mouth than we are aware of. I take great pains to impress upon my patient's mind the impropriety of wearing a plate during sleeping hours.

In regard to the material used for impressions, a person could write a long paper on the different methods of taking impressions and the different materials used for this purpose. Almost every case must be studied separately. Mechanical dentistry is a study. It takes mechanical judgment and mechanical skill in order to get good results.

Dr. Woolley said the articulation would throw the plate off from its proper place and cause irritation of the parts.

(Dr. Fernandez here illustrated his remarks on the board and showed how to obviate this.)

In answer to Dr. Freeman's remarks with reference to a bridge made to rest on the gum, I will say that each case determines that. If a patient had his mouth in such a condition that a bridge has to rest on the gum, such bridge has to be made movable, so that it may be removed, cleaned and replaced at any time. Where bridges rest on the gums they must be removed and thoroughly cleaned, and anything that cannot be kept clean by the wearer must be cleaned by the dentist himself.

The subject of movable bridges is a great field for study. A good deal of bad work is done in bridge work. Such work is encouraging to the quack. It is an appliance that if not made well will bring destruction and disease. I do not claim the existence of any man who makes no failures. We all make mistakes. The honest dentist corrects his failures, but the quack does not.

Dr. A. E. Matteson read a paper entitled "Practical Regulation of Teeth."

Dr. C. S. Case (opening the discussion): The paper of Dr.

Matteson does not require very much discussion as far as I can see. The principles that he has advanced are in perfect accord with my own opinion and have been for a number of years. The principle feature of the paper is: that irregular teeth should be corrected if possible, as early as they are erupted, or as soon as it is discovered that no natural influence will tend to correct their positions. Where it is possible to attach appliances for this purpose, I believe with Dr. Kingsley—and I heard him reply to a question relative to this subject a number of years ago—that teeth should be corrected as early in life as possible. There has been great objection to this because of the general practice of the use of plates, almost every dentist believing it was necessary to construct some sort of regulating plate for the mouth, and of course that in a child's mouth where the teeth and mouth are constantly changing and the teeth erupting is difficult and not practicable. But I can understand how appliances, such as Dr. Matteson has shown—and they are certainly very perfect in every way—could be attached to the first and second molars for an anchorage to be used for correcting irregularity of teeth that are erupted, say six or seven years of age, while those teeth are not changed for the bicuspids until from ten to twelve or thirteen years of age, and present very perfect anchorage for that purpose. Certainly it seems according to all physiological principles, that the earlier teeth are corrected the better it is, because they are changing in themselves. All the influences at work in the eruption of a tooth are such as to favor their change—a "deflection," of the direction of a tooth—a good word used by the essayist. It is changing in itself and a very slight force, if applied properly, will bring the tooth in a proper direction and in position, and anything that favors it does not have to be held nearly as long as in later life and in proportion to the age of the patient. I have been very much pleased with the models and appliances that Dr. Matteson has constructed, and I hardly believe it is possible for all dentists to do that work as nicely or as successfully as Dr. Matteson does. He is rather radical in his opinion however relative to plates. While I have always been opposed to the use of plates for regulating teeth, I do know that there are many instances where they are quite useful, and I use them where it is desirable to expand the arch by bending bodily outward the whole alveolar ridge containing the teeth. I believe much greater use can be obtained in that way by the Coffin regulating plate, which has the influence to bend upward the entire alveolar arch. If a spring is used upon the teeth alone there is another influence at work, instead of bending out the arch the tooth itself is pressed on one side of the socket. Where pressure comes absorption takes place in the socket itself, and a change goes on in that way by retrograde metamorphosis of tissue and a filling in on the other side; whereas with the Coffin plate the entire ridge containing the teeth is gradually forced outward and the arch enlarged. I have a patient wearing two regulating plates at present, an upper and lower. The jaw strikes at one side giving great deformity, of the face induced by the occlusion of the teeth, and it becomes necessary to change the upper teeth on both sides toward the right, while the lower ones on both sides require to be changed to the left, leaving no opportunity for anchorage other than can be obtained by plates. While I believe there are occasions when it is desirable to use plates, they are certainly used altogether too much in the profession, and I hope the time is not far distant when they will almost entirely be thrown aside for correcting irregularities of the teeth.

DR. G. NEWKIRK: In regard to the matter of age, I fully agree with what has been said, that as a general rule the earlier the teeth can be regulated the better, yet it seems to me that it is not always best to begin with children five, six or seven years of age. Sometimes it were better to await somewhat the work of nature in developing the jaw, and for that spontaneous regulation of the teeth which sometimes takes place. While it is true that the younger the case the easier the teeth are moved, I have learned by experience in the last few years that there can scarcely be a limit placed upon the extreme age where we may attempt regulation of the teeth. I have succeeded within the last year and a half in regulating teeth for a man forty years of age where the right central and lateral incisors were occluding within the lower arch, and considerably twisted. One of the upper bicuspids also shut entirely within the lower arch. I have succeeded in making these teeth regular, greatly to the patient's satisfaction and to my own, and slightly to my surprise.

I agree with Dr. Case that we have not altogether outgrown the necessity for the use of plates, and that occasionally we can get results from the use of the wire spring plate, though in my practice I do not use that as much as I do the Angle screw principle. Most dentists, I think, have an idea that the only way to use a Coffin "split" plate, so-called, is to make a plate covering the entire hard palate, then saw it in two; whereas it is entirely unnecessary unless you wish to bring force to bear on the whole alveolus and palate also. Where you simply wish to move the teeth, and perhaps only a short distance, run a narrow rim of wax along the teeth on either side, just sufficient to give body to the plate for the purpose intended, and then adjust your spring. This particular spring is taken out in the other part of the cast, and you can make the rim of rubber so narrow and light that it is not particularly in the way. It makes a much neater plate than to cover the whole arch and then saw it in two.

Dr. C. S. Case: The Coffin plate that I mentioned is cut in the middle, covering the entire roof of the mouth and also the teeth, and extending down somewhat upon the gum on the outside. The purpose of that plate in my estimation and the reason why I use it, is for the purpose of bending outward bodily the entire alveolar arch containing the teeth. I believe that is the real purpose for which the plate can be used and for no other reason, and I think there is no excuse in this day for making a plate similar to the one the gentleman has described on the board. It is not the Coffin regulating plate to begin with, and if one wishes to exert a force only upon individual teeth what is the sense of using two pieces of rubber that covers a portion of the gum and retains decomposing food and secretions? A much better way in my estimation is to band the teeth and rest a spring or screw directly upon them, and I further believe that when it is desirable to expand the entire arch the ridge containing the teeth should be grasped on either side and held relatively firm by a plate covering them, and so constructed that force may be exerted upon the two halves, forcing them apart. These plates should be made so they can be worn with comfort all the time, and removed at will to be cleansed.

Dr. Newkirk: I wish to say that from eight to ten years' experience with that sort of plate, I am sure Dr. Case's notion is all wrong. There is no excuse for plastering all the teeth over with rubber. I think there is often good reason for having the plate removable. I have cases where it is worn only during the day; have one such case now which is progressing beautifully. As to the matter of cleanliness, it is cleaner than an extended plate which would cover over the teeth. It can be cleaned half a dozen times a day if necessary. I know from experience it works well and I can show by models what it has done and is doing, without any harm to the tissues about it.

DR. C. S. CASE. I wish to say that I do not believe the plate which Dr. Newkirk advocates is to be compared with "the Coffin plate" whatever. The forces are entirely different; the one being directed upon the teeth alone caused them to move through the process and the other upon the entire ridge caused it and the contained teeth to bend outward. His plate is to be compared only to the Angle, or some system which exerts force only upon individual teeth, and we all know, or ought, that screw bars or springs attached permanently to bands around the teeth are far preferable to any form of plate when this force is required.

DR. NEWKIRK: If I understood Dr. Case correctly, he said that the whole alveolus is expanded by the pressure of the plate upon the soft tissues. You do not spread the alveolus in any such way without danger of injury to the soft tissues. If you slowly, patiently move the teeth the alveolus will move itself. That is nature's process. You do not do it forcibly by pushing on the gum tissue.

DR. GEORGE J. DENNIS: I desire to say in regard to the use of the Coffin plate, that I have had some experience with it. Before I came to this city I had a great deal of regulating to do. I must say that I could not accomplish in the way of spreading the entire mouth and jaw what I did accomplish if I had not used it, using a plate split directly in the middle. If I used a plate, such as Dr. Newkirk has mentioned, I do not believe I would have accomplished the result.

In regard to the expansion of the arch, there is a bending of the alveolar process, it is not an absorption. To have it bend you must have pressure along the sides of the alveolar process; if you attempt to carry up with the teeth you do not accomplish it in the same manner. If you wish to simply carry out the teeth themselves you can accomplish that purpose by the use of bands around the teeth and by means of screws across the mouth. Where you wish to enlarge the arch, to increase the extent of the palatal surface, you use a Coffin plate and split it through the middle.

DR. J. N. CROUSE: I am inclined to think my friend, Dr. Newkirk, is a little off this time. Take one of the sharp V-shaped mouths in which you can hardly get the point of your little finger into the roof and want to spread the arch and move the teeth, I do not know of any way that would suit me so well as to take a rubber plate and cover the teeth, splitting the plate in two. A jackscrew will carry the teeth in the direction you desire with even force, then the Coffin plate. It will shift about more with wire in it than a jackscrew vulcanized in the plate. If the gentleman will call at my office, I will show him the cast of a mouth where I started at the age twenty-one to move the upper and lower teeth out in a way I do not think it would be possible with bands. I have taken mouths that were crooked—that is, where one side was even and the other side bulged, by scraping the part I wanted to change made an accurate fitting plate. After being worn a sufficient length of time, changed it a few times and got regularity of the mouth without interfering much with the teeth. Of course, the success of a regulating apparatus depends on it being worn, and I have abandoned plates more on account of the difficulty of getting patients to wear them constantly than anything else. Now when I commence a regulating case, especialy if it is a boy, I put in an appliance that he cannot remove, then I know if it does not do its work that the appliance is at fault.

As to age I have that to contend with sometimes from the fact that prominent teachers advocate allowing the teeth to remain until a certain age before commencing to move them into their positions. I can scarcely conceive of a bigger mistake. We may have the superior central incisors inside of the lower; it is an easy form of irregularity to remedy especially when taken early. Take incisors that require turning—oftentimes in such cases the space is lessened and the difficulty lessened by deferring the operation until the teeth have erupted. So that the difficulty is increased in two ways, (1) by requiring more space and (2) in that after they are regulated they must be held in position a much longer time than if taken at an earlier age.

The task is not only to get a tooth where we want it but to keep it there. Sometimes we have difficulty in correcting teeth that come edgewise or half way around in the jaw. Let that condition remain until the child's teeth are all erupted.

I exhibited before this society the casts of the mouth of a girl eighteen years old, where she had the under jaw extending forward too far, I forced the whole jaw back with elastic bands and a cap on the head. I think some of the members present will remember the cast of that case. I put nothing on the teeth, I changed the form of the jaw and made a respectable looking mouth. It was a very unpleasant mouth to look at before that.

A MEMBER: How long did it take to do it?

DR. CROUSE: About two years, with a faithful patient to wear it.

DR. I. A. FREEMAN: I have a case in hand that I wish to speak of, the patient is nine years of age. This little Miss has her central incisors and the laterals are two-thirds erupted. There is a very marked protrusion of the superior central incisors. They are so long that she cannot cover them with her lip. The lower jaw presents what we may term an undeveloped appearance. I applied to those centrals a similar plan to what Dr. Crouse has spoken of. I placed over the centrals a gold plate or a trough in which these centrals rest, carrying it to the corner of the mouth and attached to a cap formed to go over the head and arranged with rings to go over the ears so as to get low traction. I am using elastic bands to keep up traction. She is wearing it at night only, expecting the force thus applied to carry these teeth backward, and to keep them from being carried forward by the pressure of the teeth as they are erupted posteriorally. I think there is some danger of narrowing the arch by the pressure upon the alveolus, externally pressure upon the cheek bones is not going to better develop the space for the bicuspids when they shall have become erupted. It is a case that I very much interested in and would very much dislike to make false movements.

DR. CROUSE: Put in some arms there to throw it out.

DR. FREEMAN: I have. Still there will be somewhat of a pressure upon the cheek in getting certain positions during sleep. There is another thought that occurred to me as Dr. Crouse was speaking, with reference to the Coffin plate. If pressure upon the teeth will cause a change of tissue upon the opposite side of the teeth to which it is exerted and so cause absorption of the alveoli upon that portion, why will not pressure upon the part or roof of the mouth itself cause absorption? I do not know that I am prepared to believe we are able to bend the plate of bone making up the roof of the mouth, without running the risk of opening the suture in some cases, say in young patients.

DR. JOHNSON: What is the objection to opening the suture?

DR. FREEMAN: You would have separation of the incisors.

DR. JOHNSON: What is the objection to that? They could be easily brought together.

Dr. Freeman: Some might and some might not. It is a difficult thing to bring the central incisors close together and retain them there. If there is dense tissue you cannot bring them together so readily. The irritation already set up will in a great number of cases be sufficient to cause hypertropy of the tissue, and you will have a growth there that will in turn set up conditions that are hard to overcome. We find in anatomy, if I correctly understand it, that where tendons draw across the bone, the bone gives way and the soft tissues find room. Grooves are formed for vessels, nerves and tendons in that way, so that possibly we have a change of structure in those cases where we use the Coffin plate as in those where we force the teeth outward by the plan mentioned by Dr. Newkirk

Dr. Newkirk: I will say for the benefit of Dr. Crouse, who considers me a little "off," that I will macth his case with one in my own office, where he says he produced general expansion of the alveolus. I can show a similar case where the same expansion was produced by pressure on the teeth alone, in a little over a year, producing a result where you would not know it was the same mouth. There was a complete transformation. The alveolar ridge went with the teeth.

There is one method by which you can tell whether a Chicago boy is wearing his plate or not. Have a pair of curved calipers, from time to time put them on the outside of the bicuspids or whatever teeth you are moving, you can see whether progress is being made. If progress is being made the child is wearing his appliance.

Dr. Crouse: Could not the patient remove that?

Dr. Newkirk: If he would not wear his plate I should put on something that he could not remove. In nine cases out of ten I do not use the Coffin plate, but I do insist that it has its place, and the principle enuciated is correct.

Dr. C. F. Hartt: I am inclined to think Dr. Newkirk is in the right. The fact of the teeth resting on the soft parts has nothing to do with the matter.

Dr. Matteson (closing the discussion): When I wrote the paper I thought I was pretty near alone in regard to the correction of irregularities in early age. There is little said in regard to it by Talbot, Guilford and Farrar. Most of it is in regard to the inclined plane and extraction by the latter. The extract read from Dr. "Kingsley's Oral Deformities" had escaped my mind until refreshed this afternoon.

In regard to the rubber plate spoken of, I have not words to express my abhorrance for it. Dr. Crouse has brought out one of the strong points—namely, against its use, that we have boys come to us with the plates in their pockets; they may have been out of the mouth for a week or more, the time when the case should have immediate and prompt attention. You have to drop everything you have in hand and perhaps go over the work again. It is certainly very perplexing and disagreeable to the dentist. I have in my office a large number of plates used in correcting irregularities. I have used but one plate in the last three years, and that was a retaining plate for a lady thirty-eight years of age, where I expanded the arch by wedging or rather she did, so as to articulate and occlude the lower teeth. This was merely to act as a stay to keep the teeth apart. The wearing of a plate is a filthy thing, even when there are no teeth in the mouth, and a perfectly smooth surface. There is not a patient of any dentist in this room who keeps the plate and teeth clean.

In regard to the Coffin split plate, I want to say one of the worst mistakes I have ever made was with the use of this plate, covering four bicuspids and two six year molars, at the time the child was erupting the twelve year molars. I was bringing the anterior teeth in front of the lower ones. During the time of wearing the plate the twelve year molars were erupted, and when the plate was removed the teeth did not come together as they should. There was a square bite, the best that could be obtained. The front teeth ought to have protruded over the lower. The alveolus is for the support of the teeth that comes and passes away when the teeth are shed; it comes early and late as teeth are erupted and passes with them. I do not care what becomes of what is inside of the teeth, so long as the teeth are imbedded in it. It is the teeth I try to correct, not the aveolar process.

OHIO STATE DENTAL SOCIETY.

At the Ohio State Dental Society, held at Columbus, Dec. 6–9, 1892, the officers elected were as follows: President, G. H. Wilson, Cleveland; First Vice-President, Chas. Welch, Wilmington; Second Vice-President, W. H. Todd, Columbus; Secretary, L. P. Bethel, Kent; Assistant Secretary, Henry Barnes, Cleveland; Treasurer, Charles I. Keely, Hamilton.

L. P. BETHEL, *Secretary.*

THE DENTAL REVIEW.

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C. N. JOHNSON, L. D. S., D. D. S. T. L. GILMER, M. D., D. D. S.

ADDRESS OF WELCOME.

The Hon. John Temple Groves, of Georgia, will deliver the address of welcome to the assembled dental congress on behalf of the laity.

Mr. Groves is an orator of wide reputation and we confidently expect that this will be one of the most eloquent and powerful addresses ever delivered before a scientific body in this country.

The closer union of the interests of the public at large with those of the professions is a thing cordially to be desired, and it is hoped that this great gathering will in a measure overcome the prejudices of the people antagonistic to the professions.

THE DENTAL CONGRESS.

Attention is called to the following relating to the duties of the Committee on Invitation and the Committee on Membership:

It will be seen that membership is clearly defined both for this and foreign countries. Read carefully. The Secretary-General is quite anxious that other journals will copy this in the next succeeding issue.

DUTIES OF COMMITTEE ON INVITATION.

The duties of the Committee on Invitation shall be to invite such scientific persons residing in the United States and foreign countries who are not members of the profession, but who by their recognized attainments in special departments of science, would add interest to the meeting. They shall also furnish the Committee on Membership with a list of the names and residences of those invited.

THE COMMITTEE ON INVITATION

Have the authority to invite such dentists of high standing and reputation in foreign countries as may be agreed upon by a majority of the committee, and a card from the chairman of said committee to the Chairman of the Committee on Registration shall be deemed evidence of the reputability of the holder thereof to entitle him to membership in the congress.

DUTIES OF COMMITTEE ON MEMBERSHIP.

The duties of Committee on Membership shall be to pass upon all applications for membership which may be referred to them by the Committee on Registration or the Treasurer.

MEMBERSHIP.

The membership shall consist of legally qualified and reputable dentists (as defined in the Code of Ethics of the American and Southern Dental Association) residing in the United States, and all foreign dentists regularly qualified by the laws of the countries from which they come, and such other scientific persons as may be invited by the Committee on Invitation. Each and every member to be entitled to one copy of the transactions.

All dentists residing in foreign countries who desire to acquire membership in the congress will file their application with the Honorary President or Vice Presidents of their respective countries who are empowered to pass upon their eligibility.

When applications are satisfactory to the Honorary President and Vice Presidents or a majority of them in said country the names so agreed upon shall be transmitted by July 15, 1893, to the Chairman of the Committee on Registration who will proceed to issue a membership card without further reference, whether they reside in the United States or elsewhere.

New Year Resolves.

People in this practical age are inclined to scoff at the old time custom of making new resolves at the beginning of each year. They argue that the practice is a puerile one and that it smacks largely of the periodical reforms noticed in backsliders of all sorts. But let us stop a moment and consider if, after all, we can afford to ignore the stimulus given by a good resolve. If we never resolved to do better we probably never would do better; the thought must come before the act. In all phases of human advancement there must be an ideal in the mind toward which the energies of the individual are directed. It matters not that the ideal is seldom reached. Perfection is not the order of the day, but we can be more nearly perfect if we try to be, and the degree of our perfection is not without its relation to the quality of our ideal.

As it is in a general way so it is in the practice of our profession. Dentists can be better in the year to come than they have in the year just past—if they try. By being better we do not mean in a moral sense. We have nothing to do here with a plea for morality among our fellows. Our mission is not so much to construct a moral code for our readers to follow as it is to make better dentists of them. We believe this can be done if they will bear in mind that the new year may be made to mean something more to them than a mere change of figures on the calendar. It may mean a new era in their practice, a turning point in their professional life—it may mean the beginning of prosperity.

We hope that this will prove true, and we have a few suggestions to offer as to the nature of some of the resolves that might profitably be made.

In the first place we would like you to resolve to say nothing ill during the year to come about your fellow practitioners. Do not condemn them either to your patients or to other practitioners. If you know of anything good about them *tell it*. Do not be afraid of advertising their virtues on account of a possible danger of lowering your own prestige in comparison. It cannot be done in that way. A man never said a good word about another without receiving a benefit himself. If you cannot help seeing their faults, be charitable—you probably are not perfect yourself. When you make a mistake you wish to be judged in the light of your intention rather than in the light of your error. Think of this when judging others.

Another resolve which never comes amiss is to make the quality of your work a little better—in some instances a great deal better—during the next year. You have probably not done so well in the past that you cannot improve. The next time you put on the rubber dam for the preparation of a cavity see if you cannot prepare that cavity a little bit better than you ever have a similar one before. It can be done. There is no limit to the improvement of an operator.

The next crown you fit—but here is a subject worthy of something more than a passing notice. You probably deserve a long lecture on your crown work alone. You never put on a perfect crown yet. See how nearly you can approach it in the next twelve months. When you gain perfection publish your method in the Dental Review. But even then do not rely too much on any one method. Perfection is gained as much by care in manipulation as by originality of method.

A good resolve to make is that you will do your full share of society work during 1893, and remember that there is a deal of it to be done in this year. You owe the profession a large debt in this particular, for you probably have gained much of your present knowledge through the medium—directly or indirectly—of societies. When asked to do any society work within your power do not decline. Keep this resolve well in mind for you will likely be called upon before the year is out.

And last of all resolve to read your dental journals more diligently, and digest their contents a little more perfectly than in the past. Much important matter will be published this year, and you cannot afford to overlook it. This will be an epoch-making year in the profession, a year full of promise for permanent advancement, and one which will add much to the history of our calling. For the preservation of the records of progress made during the year the journals will be largely responsible, and in suggesting this last resolve we are not unmindful of our own duty in the matter. We admit the necessity for a resolve on our part to make the conents of our pages more useful even than before. We freely make it, and trust we may be as successful in fulfilling ours, as we hope you will be in the consummation of yours.

C. N. J.

DENTAL CONGRESS.

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DOMESTIC CORRESPONDENCE.

LETTER FROM THE SANDWICH ISLANDS.

HONOLULU, Hawaian Is., April 11, 1892.

Dr. L. Van Orden, Pres. San Francisco Dental Association.

MY DEAR FRIEND: You have kindly asked me to write about any thing that might be of interest here.

We had a very pleasant voyage, so the captain and old sailors said, tho' we land lubbers thought the vessel a trifle unsteady. We not only had "fresh rolls" for breakfast but "ad libitum" all day, even in some cases "ad nauseum." Personally we were fortunate enough not to lose a meal.

Arriving here we found some old friends; we are fed on potatoes from San Francisco, chickens from San Francisco, California turnips, and cauliflower, bread made from California flower; sleep on beds and sit in chairs from California; live in a house built of California redwood. We also have some things with which we are not so familiar, *guava*, fruit, *taro* cakes, wild oranges, fried plantains, etc. Some familiar fruits and vegetables grown here are in abundance, such as cucumbers, tomatoes, bananas and radishes.

The climate is delightful, but not uncomfortably warm as I expected to find it.

The profession is well represented here by Drs. Whitney, Grossman, Lundy and Anderson.

Dr. Whitney is the same genial man that many of you know already and the senior of those now in practice here. His enthusiasm is not excelled by any of those of us who are surrounded by many devoted to the same interest. I found him working over a high-low base Wilkerson chair, restoring the contour of two central incisors for a patient from the South Sea Islands. The case called for good judgment on account of the patient's distance from any dentist. Anticipation of future troubles made some work necessary which would not ordinarily be done, and the cutting away of some enamel walls that would ordinarily be left. Dr. Whitney's engine is run by a water motor and a fan run by the same power promotes comfort by keeping the air of the office in motion. He good naturally opened a cabinet for me containing about two dozen native skulls, from which useful information was gained. They proved that the savage races were not free from the ills that afflict civilized man. Among them we noticed the following cases: viz. Perforation of the alveolar process at the apex of roots, showing alveolar abscess. Of these there were many cases. Loss of teeth by extraction in some form, shown by a smooth alveolar ridge. One lower jaw had remaining in it about half the usual number of teeth, and in the spaces was a *smooth* alveolar ridge showing that the teeth were lost many years before death. One case showed perforation of the antrum about the position of the buccal roots of the first molar. The perforation may have been made by the knocking out of the tooth and a piece of the process and of the floor of the antrum at the same time. That it did not occur after death is shown by the partial filling up of the socket of the palatine root and by the fact that the *edges* of the opening into the antrum were smooth, just like one of the natural foramina of the skull; the foramen rotundum for instance. The opening was about ¼ inch in diameter and probably existed in the soft tissues also.

Dr. Whitney has made quite a study of the dens sapientiæ, but finds no more room provided for it in this native race than in the civilized. His skulls are mostly very old ones, gathered from old battle fields and cemeteries. Irregularities of the anterior teeth I did not notice in a single instance. One inferior maxilla showed a rare perversion in the eruption of the dens sapientiæ. The full sized crown erupted on the lingual surface of the maxilla below the border line of the alveolar process, and the grinding surface was pointed downward, exactly the reverse of its natural position. The accompanying sketch will crudely show its position.

Another skull showed anchylosis of the right temporo-maxillary articulation, which occurred after adult age had been reached, as shown by almost entire absence of cusps due to attrition before anchylosis. The left superior and inferior second and third molars were wanting, having probably been knocked out to enable the sufferer to take nourishment. The root of the inferior dens sapientiæ was tipped forward to an acute angle, having evidently been impacted behind the second molar.

Dr. Grossman is next on the list in length of practice here. He has a roomy office on the first floor fitted with modern conveniences. To show that enterprise is not confined to the United States alone, I will state that though he had been several years in practice here and was well qualified to continue, yet he left his office and took courses of lectures in the College of Dentistry of the University of California, and in the Dental Department of the University of Pennsylvania, graduating from the latter in 1891. He has also taken a course of lectures in Jefferson Medical College, of Philadelphia, and expects to return there next session and complete his course for the degree of M. D.

He reports a great deal of pyorrhœa alveolaris among the natives, and that they are careless about their teeth, even the most refined of them. According to his observations their teeth are softer than the whites, as also the teeth of the half-castes.

Drs. Anderson and Lundy are well situated on a first floor office, fitted up with chairs of the latest pattern, electric engines and mouth lamps, saliva pumps, electric motor for laboratory, etc. They report about the same average of operative and mechanical work that comes to a California office, and that most of their plates are made of aluminum, very few of rubber, and a fair proportion of gold. The fittings of all these offices are such as we would find in any first-class office of California or the East, but the open doors and windows, the entire absence of fire places, and the outlook upon tropical vegetation quickly show a different atmosphere.

The practice here is divided among whites, half-castes and natives, the latter being in the minority. Irregularities are rarely if ever seen with the native, and with the half-castes are not as frequent as among the whites.

An endeavor is being made to have a dental law passed by the legislature here similar to the dental laws of some of the United States. It will probably require an examination of all who desire to practice here, whether graduates or not. It will be for the purpose of preventing work by those transient dentists who never expect to return, and may on that account be less careful of their work. On account of the small number of dentists here, and the fact that there is no dental nor medical college here, it seems only proper that diplomas of reputable American and other colleges should be recognized by the proposed board. "Westward the course of empire takes its way."

L. C. GODDARD.

REVIEWS AND ABSTRACTS.

THE DENTAL TRIBUNE. Weekly, price $2.00 per annum—8 pages—Louis Ottofy, D. D. S., editor and publisher, Masonic Temple, Chicago. Our late associate editor has ventured into journalism on his own account.

In his salutatory he says "there exists in this city and at the present time a necessity for a publication of this character." There are numerous weekly medical journals in this country and Europe and already there are at least two weekly dental journals in Germany, all of which seem to be well supported.

From the successes of those already in the field there seems to be little doubt of the success of this first dental newspaper, and if our energetic and versatile editor does not succeed, it will not be for lack of hard work and push. We wish him every success in this his latest undertaking. The journal has a neat and attractive appearance, and after a time we will look for more than a dissemination of news and gossip as these are of the least importance to busy dentists—the ones who read.

PEARSON VEST POCKET APPOINTMENT BOOK for 1893 is out—all emblazoned with gold letters, for daily use in the making of opportunity—price 75 cents.

ICHTHYOL. Reports by medical practitioners, pages 44, Merck & Co., publishers, New York.

ANTIFEBRIN IODOL. Condensed reports from experiments and users thereof. Merck & Co., New York, 38 pages.

PROFESSOR AND DEMONSTRATOR. This is the title of an article in the *Western Dental Journal* for December, by J. P. Root, D. D. S., a demonstrator in the Kansas City Dental College.

After reading this little paper we are prepared to shake hands with the aforesaid "modest" "row of men who sit (on commencement day) quietly in the background with downcast eyes," for be it known "they are the bone and sinew of the college, they are the men who have instilled into the minds of these students what knowledge they possess, and probably (very probably) the public will never realize it; for we do not hold the reins of government, we cannot place ourselves in seats of high honor, and so we will continue in the row." All men cannot be commanders; there must be a few who will consent to occupy subordinate positions; if they are students and attentive, in the course of time they will either die a natural death or be hanged, fall through an elevator hatchway or be dispatched in some unaccountable manner.

A good demonstrator is a *rara avis* not to be caught with salt, he flies too high. A bad demonstrator (who ever heard of one?) is the one who does not follow the teaching of the chair; he cannot, his already hydrocephalic estimate of his acquirements is beyond any reasoning of the professor (who does not take chapters from text books), who tries with patience and persistence to teach first principles primarily to the demonstrator and then relying on his interest and intelligence (?) unfolds his scheme to the student. When he finally reaches the demonstrator he is told that some other way is far superior to the one taught by the professor (who leaves his office full of patients), the old man (the professor) being a little "off" on that particular point!

The really, truly good demonstrator does not aspire to a professorship at once, he prefers to wait—at least one year—then he is able to get all the teacher's (professor's) notes down pat—and he straightway blossoms out as a rival teacher in *another* college across the way (in Chicago!) perhaps in K. C. also. The bad demonstrator stays on and works and absorbs all the knowledge he can, no matter where it comes from, and if he does "sit in his modest cutaway and admires (?) his superiors," he is proud of the fact that he is one who may be hidden under a cloud for a time, but if there is real good seed under his "modest" exterior he will blossom out some day as a good dentist, which is what we are all trying to be.

DENTAL PRACTICE.—A retrospect of a period of more than twenty years leads one to the conclusion, from careful observation, that the practice of dentistry is a very absorbing occupation. In looking over the names of those who may be considered to have been fairly successful from the professional standpoint we find that honesty and faithfulness in the discharge of professional obligations enforces close attention to the details of all departments of practice.

There are names of a few who have covered the whole range of practice apparently equally well, but they are few indeed. It is to the one who has made some special field of practice his own that we find standing near the head of the ranks. It is not possible for any man to be universally apt in every department of science. We need only look at the achievements of Pasteur, Liebig, Klein and others to see with what assiduity they pursued a special line of work to immortalize their names on the scroll of fame. In our own special field we can point to Tomes, Magitot, Richardson, Bloch and Miller as examples of the same character, Tomes *pere* as a physiologist and *fils* as anatomist and physiologist rank higher than in other fields although their accomplishments may be equal if not better than some of their confrères in the daily routine.

The special thing that we desire to impress upon our readers is that in practice as in science too much scattering leads to bad results and he best serves himself who devotes his able energies to the attainments of a single object. Being asked one day by an inquirer who could most satisfactorily make a certain kind of denture we promptly named one who by fidelity and acquired skill combined with honesty of purpose filled our ideal. It is the acquirement of such a reputation in practice that calls from us the plaudit earned. No thought of jealousy or self-interest could for a moment enter the mind of one whose sole object was to provide the best service obtainable. Our readers will gather from these few remarks that we plead for painstaking labor, experiment and study to earn for yourselves the reputation of being successful in what you undertake; omitting nothing in the endeavor to satisfy your client, and first of all satisfy your own ideal, which must of necessity be high. Take courage and inform yourselves.

METHODS OF FILLING TEETH. An exposition of practical methods which will enable the student and practitioner of dentistry successfully to prepare and fill all cavities in human teeth, by Rodrigues Ottolengui M. D. S., with 236 illustrations giving exact representations of all classes of cavities and their management. Philadelphia, The S. S. White Dental M'f'g. Co., London, Clandius Ash and Sons, Limited. 1892.

Autobiography is unquestionably the most profitable of reading as well as the most fascinating literature when it deals with the lives of great men. This book is a setting forth of the author's own methods of practice to the exclusion of others and is full of interest and instruction on that account. Whether a man's methods be good or bad does not preclude benefit from a consideration of them. But the value of an autobiography depends entirely upon the amount of experience and degree of greatness of its subject. Judged by this standard, a work purporting to "enable the student and practitioner of dentistry successfully to prepare and fill all cavities in human teeth" without calling in the aid of other authorities will have the limitations of its author. A careful analysis of the book discovers these limitations:

The question is comprehensively treated in eight chapters which first appeared serially in the *Cosmos*, attracting considerable attention and necessarily some unfavorable criticism because they embodied the dogmatic teaching of one man. The articles now brought together make a book of 200 pages.

Space will not permit of more than a hasty consideration of a few points. On page three, in discussing the advisability of leaving a stratum of disinfected caries in the preparation of cavities, the author is in error in characterizing the affected dentine in juxtaposition to caries as a physiological return to an embryonic condition, a part of nature's attempt to protect itself. This condition is (see Miller and Black) the advance guard of the enemy—streptococci working their way into the tubuli, their acid excreta softening and dissolving the lime salts. The putrefactive changes have not yet begun in this zone. This condition is essentially pathological, not physiological. The author's advice to treat a cavity, when such zone is to be filled over, with a "reliable germicide" for a few days, is a confession of error as well as the accepted practice.

The principles, general and special, involved in the preparations of cavities are formulated in an able manner and shown with wood cuts. In the main they are a safe guide, though the impossibility of laying down exact rules is exemplified by some inconsistencies. For instance, the practice of beveling enamel margins is severely condemned in Figs. 45, 46, and 47, while in Figs. 40, 41, 42, 43, and 44, immediately preceding, it is very properly recommended. It is disappointing in contemplating the practice of a man apparently well versed in methods of the modern school, to find no advocacy of the "dove-tail" form for approximal cavities of bicuspids and molars.

The dove-tail, which may be explained as an extension of a cavity from its deepest cervical seat, through to the masticating surface with parallel sides, is recognized as the most scientific and lasting shape for these cases. The adoption of this rule of practice disposes of the perplexing problem as to whether certain cavities situated near the cervix should be opened from the buccal or lingual side. The ignoring of this manner of forming a cavity also accounts for the author's antagonism to the matrix. For the whole question of the use of this device depends upon the formation of the cavity to suit its presence. It is futile to cry out against an appliance which has in it so much of good both to patient and operator as the matrix. A statement of its power to save time, and to simplify complexities; that the same necessity exists for previous wedging and proper polishing, would give the author's work greater value than the filing of mere prejudiced and unwarranted charges.

The author has already been criticised for putting forward as a rather new departure the usual method of restoring by wedging and building up, the approximal contours which have been a sacrifice to the "Arthur system," or lost by caries. There is no question as to the soundness of such practice, nor as to its common usage ever since the introduction of cohesive gold. The stipulation as to *broad contact* is, however, a point quite proper to take exception to. Theoretically, and applied practically, the small points of contact at or near the grinding surface are the only safe procedure. No fact is better substantiated than that the natural points of contact produce interdental spaces the most easily kept clean. Even a toothpick will not pass between two teeth filled as the book recommends. If, however, there are those who disagree with the writer in some particulars, no one can read his book without profit. Credit is due for much that is new and published for the first time, and likewise for the space devoted to the promulgation of the underlying principles of practice.

A remark overheard in a recent conversation, that the one suggestion to choose the pink variety of gutta-percha temporary stopping while the tooth was under treatment, and the white when it was ready to fill, was worth many books is indicative of the practical nature of the teaching. The chapter on oxyphosphates is particularly instructive.

It is easy to find fault, and perhaps the author's antipathy to labor and time saving devices such as different forms of prepared gold, noncohesive gold, matrices, foot-pluggers, large pieces of gold to start fillings, instrument in left hand to prevent rocking, will disappear as larger experience comes. Then let us have another autobiography.

THE ANGLE SYSTEM OF REGULATION AND RETENTION OF THE TEETH. Third edition, revised and enlarged, by Edward H. Angle, D. D. S. Published by The Wilmington Dental M'f'g. Co., Philadelphia, Penn. Paper cover 75 cents.

The quality of Dr. Angle's mind is eminently practical. He indulges in no fanciful theories, and says what he has to say without waste of words.

This exposition of his system is clear, simple, and nearly complete. The paragraphs on " Fundamental *principles*," the description of a method to secure correct impressions, and his fourteen "*Final suggestions*," contain so much of the practical value as to make the book, for these alone are worth many times its price to the working dentist.

No one, we think, can possibly appreciate Dr. Angle's ingenuity and patient industry more than this reviewer, and it is only a sense of duty which compels the expression of that which follows.

We do not believe Dr. Angle has adopted the best means of placing his methods practically in the hands of the general profession.

The precise value of the ideas which may be claimed distinctively by him consists in their simplicity. The essential parts of the " system " of appliances are really but two or three. A wire sufficiently threaded at one or both ends, and pieces of tube of varying lengths for direction and traction. Practically that is all there is of it. But in order to make up a "set," No. 1 as advertised, the tubing is represented by not less than eighteen figures (including those containing screws). Additionally there are several curved pieces of wire, and two bits of band material coiled like a watch spring, twenty-three pieces in all, artistically arranged to make an imposing cut, while in truth the only figures necessary to represent the idea are those marked J and A. Above the beautiful array we see the words "*Patented March 5th, 1889.*"

What is patented? The whole set? On what is a patent based? If a part, what part? Not the retaining gold wire which has been in use longer than we. Certainly not the jackscrew! not the tubes (called pipes), for they are as old as the jeweler's trade; not the nuts and screws, as old as machinery; not the coiled strips of German silver, and surely not in three little pieces of wire, slightly curved, though they are to add grace to the picture. If there is anything connected with "set No, 1" wherein consists a patentable idea it is in one of the combinations as shown in figures 31 or 32.

The patent of "*Set No. 2*" does not seem unreasonable. The appliance as a whole is for one specific purpose; can be used for an indefinite number of cases; contains one or more principles which we believe are original with Dr. Angle; and the price, considering the character and value of the mechanism, is one which the dentist could well afford to pay.

But with reference to the parts before mentioned; what the profession needs is to have the essential pieces placed within reach as they could and should be in such form and quantity and at such a price that any one could afford to keep the appliances used in a given case for reference, or evidence, or illustration in report of such case.

First, the tubes. These could be supplied in lengths from four to six inches, and cheaply. For the matter of that, any ingenious man with a draw plate can make them easily enough —and usually the soldering of the joints is unimportant—if the operator will run a line of flux along the joint and lay that side down upon the band when he makes the attachment.

Second, band material. Instead of a little coiled strip, too narrow for some cases and too wide for others, the German silver should be supplied in sheets, enough for fifty cents (at a good profit) to last the ordinary practitioner for years.

Third, the screws. These should be upon either end of wires three to five inches long; or a bunch of wire not threaded could be supplied, accompanied by a screw-plate made with two holes (a and b) for this particular purpose—and the dentist or his assistant could easily cut the threads for any required appliance.

Taps might also be furnished for threading the nuts, but as these are much more difficult to make, it would probably be well to supply them ready made at a reasonable price per dozen. Thus equipped any dentist possessing sufficient ingenuity to regulate teeth, could make and adapt an appliance to the case in hand, and afford to preserve it after using for reference, whereas if he follows the ingeniously devised plan now laid out for him to buy his material by or from "the set," he cannot do this without paying each year a sum which his wife may need for the purchase of a sewing machine and a new silk dress.

Now we have no doubt Dr. Angle tries to justify himself, honestly, for his scheme of patent and manufacture, with the plea that he has evolved one or more original ideas, has expended thought and labor in perfecting his "system," and that the men who profit by his thought or labor ought to pay for it. At first glance this appears reasonable; but let him pause and try to count the ideas he has appropriated in times past, for which he has not paid money to the originators.

The writer hereof is ready to acknowledge that he has received ideas of pecuniary value from hundreds of men, the majority of whom were not personally known to him, and he doubts if any man could refuse to make the same admission.

What can one do to make good the eternal law of recompense? simply this, give all the help he can in a professional way to others. It is not possible for the man of public spirit to secure payment in money for everything he does or contributes.

The true professional spirit is one of generosity. The professions have not been uplifted and advanced along lines of mercantile calculation. Each man has been willing to *give* something. One has had mechanical ingenuity and donated the results; one has had a gift of writing and given freely the contributions of his pen; another with a talent of speech, or executive ability has used it for discussion, instruction, or organization.

Take one example:—For nearly thirty years Dr. Cushing has not missed one meeting of the Illinois State Dental Society. No one can estimate the value of his services, and certainly there is no member who is not his debtor. Has he been paid in money? The thought has never entered his mind.

No, the scientist, the artist, the patriot, must not count altogether or much on money—nevertheless, "they have their reward." Yet it often happens that the manifestation of a liberal spirit pays, even in pecuniary returns: as we believe it would in the direction indicated in this review. "*There is that scattereth and yet increaseth, and there is that withholdeth more than is meet, and it tendeth to poverty.*" G. N.

QUESTIONS AND ANSWERS FOR DENTAL STUDENTS, by Ferdinand J. S. Gorgas, A. M., M. D., D. D. S., Baltimore: Snowden & Cowman, 1892. Part I., pertaining to the Freshman Course, pp. 60, price, cloth, $2.00. Part II., pertaining to the Junior Course, pp. 92, price, cloth, $2.50. Part III., pertaining to the Senior Course, pp. 80, price, cloth, $2.50.

The Freshman Course treats of first principles and foundation work. The studies involved being anatomy, dental physiology and histology, malformed teeth, dental pathology, chemistry, dental materia medica and therapeutics, operative and prosthetic dentistry.

The Junior Course takes up the Freshman studies in a more advanced way, treating of vulcanite and celluloid work in addition.

The Senior Course is much more complete in its quiz upon general dental practice, and the questions are asked and answered in a clear and comprehensive manner, which is characteristic of the entire course. The departments of surgical, pathological and operative work are good. Prosthetic dentistry, in its several branches, receives careful treatment, while the department of metallurgy is fine, presenting very many valuable details for the management of the metals and their alloys.

These books outlining the three courses of dental study are more thorough and comprehensive than anything that has been placed before the student heretofore. Each department seems to have received special and careful attention, and while the teachings of the different colleges differ somewhat, still a work of so high character cannot but stimulate general collegiate work to a higher standard of excellence.

The large experience of Dr. Gorgas, as a teacher, has enabled him to see the usefulness of this compilation for students, and for those practitioners who would keep well up with the present teachings of dentistry.

The reputation of the author, through his previous works, will be a ready recommendation for this one.

TWELVE THOUSAND MEDICAL WORDS, pronounced and defined by George M. Gould, A. M., M. D., Philadelphia, P. Blakiston, Son & Co., 1892, pp. 317, price, leather, $1.00.

A very good pocket medical dictionary, including tables of arteries, muscles, nerves, classes of microörganisms, thermometric scales, and a dose list of drugs and their preparations.

The form and size are convenient for the pocket, and the matter is very concise and clear. It is well printed and bound with a neat leather cover, which gives it an attractive appearance. For hurried reference and for students' use, this handy little volume will be in great demand.

BOOKS RECEIVED.

THE STUDENTS QUIZ SERIES, Anatomy (double number), by F. J. Brockway and A. O'Malley. Lea Brothers & Co., Philadelphia, Pa., limp cloth $1.75.

A book of nearly 400 pages, well digested and most logically arranged, just the thing for pocket use by students and country doctors who have little surgical work to do. It will help the rusty doctor to accurate anatomical knowledge at a glance and is really a valuable book for the practitioner at any time. It seems to be quite up to date and has a very good index.

PAMPHLETS RECEIVED.

A PLAIN TALK ABOUT THE TEETH, by Geo. H. Chance, D. D. S., Portland, Oregon, pages 47 F. W. Bottes & Co., Portland, Oregon.

A Full Report of the Secretary of the General Executive Committee of the World's Columbian Dental Congress, 1892, pages 62. W. W. Walker, Chairman, New York. A. O. Hunt, Secretary, Iowa City, Iowa.

PRACTICAL NOTES.

Constitutional Treatment as a Factor in Arresting Decay in Children's Teeth.

By F. A. Knowlton, D. D. S., Fairfield, Me.

That purely local treatment was *not* all that is desired in the treatment of the teeth of children, has to me, been an ever present idea. Faint at first it was, but with experience this idea has blossomed and thrived, and in response to an invitation to read a paper at this meeting, I will give the results of my practice and some of the thoughts of my leisure hours.

During my brief career of six years in the ranks of the dental profession, I have many times been baffled, and sometimes discouraged, in vain attempts to arrest decay in the very young permanent teeth. I will not enter into a discussion on the relative merits of filling the temporary teeth, as my time will not admit of it, but it is with great reluctance that I pass that most important topic.

Very few of us are called upon to attend the teeth of the children until the first permanent teeth, the sixth year molars, are fully erupted, and we are appalled by the ravages made by decay on these most important teeth. The dentist is usually applied to for remedial services, but when these first permanent teeth of your little patient are complete wrecks, what can you do? The time for preventive treatment has for them surely passed. These first molars should (some say, *must*) be retained until the bicuspids are in place, articulating; then, if they cannot be made perfect members of the denture, extract, and let the reserve, the twelve year molar, hasten to fill the place. The sixth year molar, as we all concede, occupies a very important place but, by parents, is many many times mistaken for a temporary tooth, coming as it does, a year before the first temporary teeth are dropped; it has many duties to perform, to stand and keep correct the occlusion of the jaws, the face in shape and masticate the food while the entire temporary set are being replaced by the permanent ones.

But when these first molars come to us in the condition that we so many times see, does it not follow, that unless prevented by *some* remedial treatment, the *remaining permanent* teeth, may take the same course to destruction.

"An ounce of prevention as opposed to a pound of cure," must be my text in discussing the topic which heads this paper.

From the sixth to the twelfth and fifteenth years the growth and development of the body is rapid. The bone of the frame having more exercise, takes the bulk of the bone making element in the food and leaves the teeth with a lamentable lack of this indispensable material. The child of to-day gives his teeth very little exercise; he is fed too much on cooked up sweets, lemon pie, raisin cake, etc., and, with a tendency to mental activity and hard study at school, he has, as a rule, very bad teeth. Milk and coarse food would be better, but ice cream, blanc mange, etc., are more palatable, they slip down easily, but they deprive the teeth of their duty, and the saliva of its employment. But it is not my intention to enter into a dissertation on diet altogether, but under the circumstances, how can we expect the teeth of the children of to-day, especially city-bred children, to present other than these conditions that we so much deplore. In many cases the child's frame itself is weak; I know of a boy who has had both arms broken in the simple act of drawing himself up to the low limb of a tree, the weight of his body being too much for the bone. This shows a positive lack of bone nutrition, and that same boy's teeth were mere shells, nothing more.

Purely preventive treatment, in arresting decay, must of course, be governed by circumstances. Many times our best efforts will be frustrated by the *patient* neglecting to carry out our instructions, and the disappointment incurred, tempts the enthusiastic and conscientious dentist to drop scientific ideals and "saw wood" or to put it into less slangy words, to let things take their own course, after patching things up as best they can.

But having met with flattering success in one or two seemingly hopeless cases, I have had courage to continue, in opposition to *some* discouraging features and *do most firmly believe that* constitutional treatment is the only thing to be resorted to in those cases where deficient ossification is so painfully apparent.

We all know that lime water, both as a tooth wash and taken in tablespoonful doses in milk, is a valuable aid in hardening "soft" teeth to some extent, but there is something more than lime water wanted in the rapidly developing teeth. Three years ago I happened to notice upon a physician's blotting pad (which was furdished by the Maltine M'f'g. Co., of N. Y.), the formula of "Maltine with Hypophosphites," and it occurred to me that it might fill a "long felt want" in building up the remaining permanent teeth of a little patient with whose sixth year molars and central and lateral incisors, I had been having a hard srruggle.

Maltine is a perfectly pure concentrated extract of barley, wheat and oats, containing all the nutritive principles of these three importent cereals; it contains large proportions of nitrogenous matter, carbo-hydrates and phosphates and is, therefore, rich in bone-producing and strengthening elements. The preparation "Maltine with Hypophosphites" contains in each fluid ounce,

Hypophosphite Lime, . .	3 grains
" Soda, . .	3 "
" Iron, . .	2 "

Von Bibra gives the chemical analysis of the adult human tooth, in comparing the inorganic with the organic element as 96.40 of the former, to 3.59 of the latter in the enamel and 71.99 to 20.01 in the dentine. When we see the unmistakable signs of inorganic deficiency is it not our duty to prescribe, that this deficiency shall be met? It occurred to me that maltine would be a great factor in building up weak teeth and I have recommended its use in several bad cases, during the past three years, and with very satisfactory results. In the case of the Miss of nine years who was the first to take maltine under my supervision, the permanent teeth in position where the sixth year molars and the central and lateral incisors: I had filled the molars "to overflowing;" large crown cavities at first, they had softened around amalgam plugs and had been patched into mesio, disto and bucco-coronal monuments. The centrals and laterals had very sensitive approximal cavities but I had succeeded in getting fairly satisfactory gutta-percha fillings in place. When I commenced the maltine doses (a dessert spoonful, three times a day in milk during meals), the first bicuspids had loosened the teeth above them, and came to the surface about a month later when my little patient came in to have some pieces of the temporary teeth picked off the gum.

At this time I gave her a bottle of lime water and told her to use it often to bathe the teeth. The next visit was six months later and I could not see any change to speak of but at the expiration of a year I *could* see a decided change in the structure of the teeth: the ones that were filled were *holding their own* now and the first bicuspids had not started at all to decay. The maltine had been taken faithfully with very few skips and was now reduced to a teaspoonful and continued six months longer. Last May I extracted two of the poorest sixth year molars to make the twelfth year molars take their place and as the permanent teeth with the exception of the twelfth year molars are all in place, they are perfect and sound as a nut.

Our profession is a conservative one but we should deal with the dental organs, not only as we find them, developed and decayed and diseased, but we should look ahead and penetrate the mysterious workings of nature as far as we are able: thus we may to some extent, direct the actions and form the habits of our patients and the public, and so do what *is* in our power for the development of a perfect denture.

In making these remarks, I have not presumed to instruct, but have intended them merely as reminders of what we already know, with the hope that we may all live up to our young ideals. And may we all be incited to an earnest endeavor to enlarge the usefulness of the dental profession.

DENTISTRY IN FRANCE. Extracts from the law regulating the practice of dentistry. Translated by L. Ralph Dillon. Translation from *Revue Odontologique.*

PART II.

ARTICLE 2. Conditions regulating the practice of dentistry. No one can practice dentistry without having either a medical or dental diploma. The diploma of dental surgeon will be given by the French government after a course of studies organized according to a regulation passed, according to a notice of the superior council of public instruction, and examinations passed before a State establishment of superior medical instruction.

PART IV.

ART. V. The physicians, dental surgeons and midwives holding foreign diplomas, of whatsoever nationality, can only practice their profession in France, on having obtained diplomas of doctor in medicine, dentist or midwife, there, and having conformed to the dispositions forseen in the preceding articles.

Exemptions from study and examinations can be given by the minister, in accordance with a regulation decided upon in the council of the superior public instruction, in no case the exemptions given to obtain the degree of doctor can hold good for more than three proofs or (trials.)

PART VII.

Foreign students who (record) file either the diploma of doctor in medicine according to Art. I, of this law, or the diploma of surgeon dentist according to Art. II, and the students from foreign countries, who (record) file their diplomas of first or second class midwives, according to Art. III, are subject to the same rules of study and examinations as the French students. They can always be allowed, according to the instruction in faculties and medical schools, either the equivalent of the diplomas, or certificates obtained by them in the foreign colleges or the exemption from the French grades for this matriculation, as well as partial exemptions of study corresponding to the time of study in the foreign country.

Art. IX. Physicians, surgeon dentists and midwives are obliged within the month of establishing, to register their title without delay at the prefecture, or sub-prefecture, and at the department of a civil court of their ward. The change of residence to another department entails a new and similar registration. Those who have not practiced for two years and wish to reënter the practice of their profession, have to register their title in the same manner. It is forbidden to practice the above professions using an alias, under the penalty stated in Art. 18.

Art. X. Distinct lists are annually made in the departments under the supervision of the prefects and judiciary authority, having the names and surnames, residence, date and source of the diplomas of physicians, dentists and midwives acknowledged by the present law. These lists are affixed every year in January in all the communes of the department. Certified copies are sent to the ministers of the interior, public instruction and justice. The statistic of the medical body existing in France and the colonies is rearranged every year under the supervision of the ministers of the interior.

Art. XI. The validity of debt to physicians, dentists, midwives and druggists, for their visits, operations and medicines, is proscribed in two years.

Art. XIII. Commencing from the enforcement of this law, the physicians, dentists and midwives will enjoy the right to form syndicates in accordance with the law of March 21, 1884, to defend their professional interests from every one, saving the State departments and the communes.

ILLEGAL PRACTICE OF MEDICINE.

PART V.

Art. XVI. It is illegal for any one not having a diploma of doctor in medicines, sanitary officer, surgeon dentist or midwife, and not being in the conditions stipulated in the articles 6, 9 and 32 of this law, to take part habitually or consecutively in the treatment of diseases or surgical affections as well as the practice of dentistry and obstetrics, saving in cases of emergency.

§ 3. The dispositions above do not refer to medical students acting as assistants to physicians, or who are placed by him to care for the sick, or to nurses, nor to people who not taking the title of surgeon dentist casually extract teeth.

Art. XVII. The infractions foreseen and punished by the present law shall be tried before the correctional jurisdiction. Especially concerning the illegal practice of medicine, dentistry or midwifery; physicians, dentists and midwives, the regularly constituted medical associations, syndicates in accordance to Art. 13 can use the tribunals by means of direct summons, in the terms of Art. 182 of the code of criminal process, without detriment to the right, if necessary, of taking a civil part in all the prosecutions of these offenses begun by the public minister.

Art. XVIII. The illegal practice of medicine is punished by a fine of 100 to 500 francs, and in case of recurrence of 500 to 1000 francs, and of imprisonment of from six days to six months, or to only one of these two penalties.

The illegal practice of dentistry is punished by a fine of from 50 to 100 francs; in of recurrence, a fine of from 100 to 500 francs.

Art. XIX. The illegal practice of medicine or dentistry, with the usurpation of the title of doctor in medicine or sanitary officer, is punished by a fine of from 1,000 to 2,000 francs, and in a case of recurrence 2,000 to 3,000 francs and an imprisonment of from six months to a year or to only one of the two penalties. The usurpation of the title of dentist will be punished by a fine of from 100 to 500 francs; in the recurrence, a fine of from 500 to 1,000 francs and six days to a month of imprisonment, or one of these two penalties only.

ART. XXII. Any person practicing medicine, dentistry, or midwifery, without registering his or her diploma, within the time and under the conditions stipulated in Art. 9, of this law, is punished by a fine of from 25 to 100 francs.

ART. XXV. Temporary suspension or the absolute incapacity to practice their profession can be declared by the courts and tribunals accessorily to the penalty, against any physician, dentist, midwife, who is condemned.

1. In case of a debasing sentence.

2. In case of a sentence for theft, fraud, embezzlement for crimes or offenses foreseen by the articles 316, 317, 331, 332, 334, 345, of the penal cone.

3. In consequence of a correctional penalty pronounced by a court of assizes, for facts qualified as crimes by law. In case of condemnation pronounced in a foreign country, for one of the above crimes or offenses, the guilty one can equally, at the request of the public minister, be suspended temporarily or judged absolutely incapable of exercising his profession, by the French tribunals. The aspirants to the diplomas of doctor in medicine, sanitary officer, dentist and midwife, condemned to one of the penalties, in paragraphs 1, 2, 3 of this article can be expelled from the establishments of higher grade of teaching.

The penalty of expulsion shall be pronounced on the conditions considered by the law of February the 27th, 1880.

In no case will political crimes cause the suspension or total incapacity of practicing the professions referred to in this article, nor the exclusion from establishments of medical education.

ART. XXVI. The practice of their profession by persons against whom temporary suspension or absolute incapacity has been pronounced under the conditions of the preceding article, is held subject to the articles 17, 18, 19, 20, 21, of this law.

ART. XXVII. The article 463 of the penal code is applicable to the infractions foreseen by this law.

PART VI.

Art. XXX. A regulation deliberated by the superior council of public instruction will determine under what circumstances:

1. A sanitary officer can obtain the degree of M. D.
2. A dentist who enjoys transitory privileges can obtain the diploma of surgeon dentist.

Art. XXXII. The right to practice dentistry is given to every dentist who can justify that he is enrolled in the list of licenses of January 1, 1892.

Dentists referred to in the preceding paragraph can only anæsthetize with the assistance of a physician or sanitary officer.

Dentists who are contumous to the foregoing paragraph are subject to the penalties of the second paragraph 19.

Paris, November 30, '92. Carnot.

MEMORANDA.

Dr. Francis Peabody, of Louisville, was in Chicago recently.

Dr. T. S. Hacker, of Indianapolis, Ind., was a recent visitor in Chicago.

The Dental Congress will be well attended in 1893 from present indications.

Pyoktanin is very useful for the treatment of excoriations about the corners of the mouth.

Dr. S. F. Duncan, of Joliet, Ill , and F. O. Hetrick, of Alliance, Kans., were in the World's Fair City in December.

The thanks of the Executive Committee of the Dental Congress are due the firm of C. Ash & Sons, London, for assistance in procuring names of dentists in foreign countries. It would have been impossible to have selected such a complete list but for their assistance.

In addressing a letter to the editor a correspondent said: "Masonic Temple, Chicago, 1178th floor."

It reached us—The Masonic Temple is 21 stories high, 308 feet from the sidewalk. Our offices are on the tenth floor. There are more than thirty dentists with apartments in this the highest business structure in the world.

Salol has at last been obtained in solution as a pleasant, palatable liquid. Elixir of salol as described, is a solution by mechanical means only, of five grs. of salol in each dessertspoonful, making a palatable liquid, the advantages of which can be clearly seen in the fact that it renders administration of salol very easy, especially to children and those who cannot take powders or pills.—*Medical Era.*

The Odontographic Society held its annual dinner, January 9th, at the Commercial Hotel. Dr. W. C. Barrett was the orator of the evening. Many of the best known young dentists were present. This society is increasing in members every year and already has taken a place alongside the older societies much to its credit.

The members will have their hands full in the coming summer when the *Congress* assembles in our midst.

DENTISTRY IN PERU.

A number of the best known dentists of Lima have organized the "Association Dental de Lima."

Dr. J. S. Jenkins is President and F. Gaillour Secretary; Christian Dom, Vice-President; Walter Stubbs Treasurer and D. S. de Costro, vocal. The society will soon have charge of the dental department of the medical school of Lima. It has adopted a code of ethics and bids fair to have an influence in the world.

EDITOR DENTAL REVIEW—*Dear Sir:* My attention has been called to reports of several societies and also in the last REVIEW, to an original method of separating teeth by Dr. J. A. Dunn. Upon reference to the "Items of Interest" for July, 1883, you will see a description of the same idea by the subscriber.

It is but another illustration of the old saying that "great minds (and what is almost a coincidence, people of the same name) think in the same channel." Dr. J. A. has neatly illustrated, and (what seems necessary at times) revived a very good thing. Respectfully yours, H. E. DUNN.

ODONTOGRAPHIC SOCIETY OF CHICAGO.

At the annual meeting of the Odontographic Society of Chicago, held at the Commercial Hotel, Monday evening, December 12th, the following officers were elected for the ensuing year, viz.:

R. B. Tuller, President ; G. J. Dennis, Vice President : F. A. Broadbent, Corresponding Secretary ; Edmund Noyes, Treasurer ; U. G. Poyer, Recording Secretary. Board of Directors, R. B. Tuller, U. G. Poyer, H. H. Wilson, C. E. Meerhoff, D. M. Gallie; Board of Censors, G. N. West, F. K. Ream, F. H. Zinn.

Yours truly, F. A. BROADBENT,
Corresponding Secretary.

HARVARD DENTAL SCHOOL.

A public meeting was held in Boston recently looking to the securing of a new building for the use of the school and the following executive committee appointed.

On motion of Dr. J. Collins Warren, the following executive committee was appointed to have charge of the work in hand:

Hon. Roger Wolcott, Col. Henry Lee, Dr. J. Collins Warren, Rev. E. A. Horton, Dr. Fred C. Shattuck, Col. W. A. Tower, Hon. Oliver Ames, Dr. Morrill Wyman, Dr. B. E. Cotting, Hon. Henry H. Sprague, Hon. S. N. Aldrich, A. Shuman, Dr. H. P. Walcott, Col. Albert A. Pope, Hon. Martin Brimmer, William Endicott, Dr. E. W. Hooper, Dr. T. H. Chandler, Dr. Thomas Fillebrown, Dr. Eugene H. Smith, Dr. Dwight M. Clapp, Dr. Washburn E. Page, Dr. William H. Potter.

WHO OWNS THE PRESCRIPTION ?

This has been answered by a Cincinnati court as follows (Meyer Brothers Druggist):

"A druggist is under no obligation to furnish a copy nor to permit any one to make a copy of prescriptions. When he has compounded a drug and delivered it to the proper party, the paper upon which the prescription is written becomes his. Druggists keep prescriptions for their own protection. If, as the plaintiff testified, defendant had agreed to furnish plaintiff with a copy whenever he called for it, that agreement was gratuitous and without consideration, and therefore void."

This is in accord with other decisions which we have published.

How would it do for druggists to print this decision on the back of their prescription blanks ?—*Med. Rev.*

ARTIFICIAL TEETH.

Those who imagine that the care of the teeth and the replacement of the natural grinders with false ones is "something new under the sun" may be surprised to learn that artificial teeth were made of ivory, placed on plates of the same material, and held together and in place by gold wires and rivets 500 to 1,000 years before Christ. Herodotus, "the father of history," tells us that the Egyptians of the fifth dynasty understood the diseases of the teeth and their treatment. There are several passages in history to lead one to the belief that both Cæsar and Anthony wore artificial teeth. The date of the introduction of false teeth into Europe is uncertain. They were known in England as early at least as the time of the discovery of America. The *Mathematical Jewel*, published in 1585, contains an account of Sir John Balgrave, "who caused all of hys teethe to be drawne out, and after had a sett of ivory teethe in agayne."—*St. Louis Republic.*

ADVERTISING.

The following is the newest style of advertising—college advertising—that we have seen:

The letter head contained the name of the college in full and the names of all the members of the faculty. Accompanying the letter were two cards saying they were good for *one silver filling* if presented before a certain date.

How extensively these cards have been distributed through the public schools we do not know.

Book canvassers, life insurance agents and others take notice that the Secretary of a modern dental college can give you points—if he resides in Chicago.

CHICAGO, Nov. 5, 1892.

MY DEAR TEACHER:

Inclosed find passes to the Operating Dental Parlors of the ——— College of Dental Surgery.

If you are in need of any dental work reserve one of these tickets for yourself and kindly hand the others to such of your pupils as will be likely to make use of them.

Please do not hand more than one ticket to one pupil.

Our operating rooms are under the careful supervision of skillful dentists. No one is permitted to operate on our patrons before first having had a thorough drill in operating on teeth out of the mouth.

Your work will be carefully and neatly done.

You will observe the time in which these tickets can be used is limited.

Very truly yours,

——— ————, Sec'y.

"Dictated."

DISINFECTANTS.

The health department of the city of New York has contributed much toward the proper understanding of the use of disinfectants, and the following summary of the results recently determined by this department, as showing the relative value of the below named germicidal chemicals, may be relied upon as accurate and conclusive. The germ destroying power of the several agents was tested on the ordinary bacteria of putrefaction. They ranked in effectiveness in the following order:

Corrosive sublimate, 64 grains to the gallon.
Carbolic acid, 5 per cent solution.
Bromine, 1 pound to 200 gallons.
Permanganate of potash, 17½ ounces to 200 gallons.
Chloride of lime, 4 ounces to the gallon.
Sulphate of iron, 1½ pounds to the gallon.
Sulphate of zinc, 4 ounces to the gallon.
Common salt, 2 ounces to the gallon.

This paper would not be complete without some reference to the semi-official deodorant solutions of the National Formulary, preparations which I have seen most successfully employed in the correcting of foul odors arising from insufficient drainage and similar causes.

The solutions are two in number and are named respectively "Liquor Zinci et Ferri compositus and Liquor Zinci et Aluminii compositus." The former is intended for common domestic use where the presence of iron is not objectionable, and the latter for use in the deodorizing and disinfecting of articles of clothing composed of woven fabric, etc.—*American Druggist.*

INTERNATIONAL MEDICAL CONGRESS.

To the Editor of the Dental Review:

The Eleventh International Medical Congress will be held in Rome, 1893, beginning the 24th of September and continuing until the 1st of October.

The Committee on Organization, following the precedent established in London, 1881, has provided for a section of odontology. As America has contributed preëminently to the scientific progress of dental surgery it is hoped that the dental profession in America will be creditably represented; all reputable practitioners are entitled to membership in that section.

The time chosen is the most delightful of all the year, and to those who have never visited the "Eternal City" the meeting of the congress will afford a rare opportunity.

The North German Lloyd Steamship Company have an established line of first-class steamers to Genoa, making the passage in less than eleven days. It proposes to reduce the fare to Genoa by twenty per cent, and the return trip by ten per cent to those attending the congress.

The French Railway Company has also offered a reduction of fifty per cent on its fare.

Dr. Norman W. Kingsley, 115 Madison Avenue, New York, has been appointed member of the American National Committee for the promotion of the interests of the Odontological Section. All communications in reference to that section should be addressed to him. A. JACOBI, M. D.,

Chairman of the American National Committee.

NECROLOGY, 1892.

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GREAT ERAS IN LIFE.*

BY W. C. BARRETT, M. D., D. D. S., BUFFALO, N. Y.

When the mariner leaves the shores familiar to him and ventures out upon an unknown sea, he marks his point of departure carefully, observes the time and position, and from that coigne of vantage all the events of the subsequent voyage are reckoned, until he again touches shore and finds a new landmark. All occurrences are dated from some epoch, whether it be in the history of nations or individuals. Wondrous incidents occur, which exercise a dominating influence upon generations yet to see the light, and they form points of departure for the voyage of a world through the great ocean of history.

The very day for this memorable meeting, aye the special moment at which we assembled, was fixed and made definite by its remoteness from the time of the miraculous birth of the God-Child in the manger at Bethlehem. One thousand eight hundred and ninety-three years, nine days, six hours and thirty minutes from the time when the Star of Bethlehem cast its era-making rays upon the lowly stable in that Jewish village, was the date that the managers of this feast set for our breaking of bread and tasting of the sacred salt of their hospitality.

Nations have their points of departure—memorable events in their history. England dates her regnant years from the time of the Norman conquest; from the day when the bold barons wrung the Magna Charta from an unwilling ruler; when Nelson broke through the French line at Trafalgar; when Victoria ascended the throne of Great Britain.

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*An address at the Fifth Annual Dinner of the Chicago Odontographic Society.

Nor is America without her great events. Her annals, though brief, comprise occurrences that have changed the history of the world. We reckon time from the Declaration of Independence; from the adoption of the Constitution; from the date of the Emancipation Proclamation. The first of these taught the world that States are by right self-formed, and not carved out by the sword. The second that men have the right to govern themselves, and that there is no God-given privilege by which kings may assume power. The third forever settled and established human freedom.

It may be seen then, that there are points of departure which are common to all mankind, and that there are others which are peculiar to single nations. So in man's personal history there are great events common to every one, and there are others that belong only to the individual. Let us for a moment consider some of those which affect the physical history of all men. They are great eras from which time may be reckoned. We may trace our progress in life by taking note of them. They are guideboards to point out the right way; lighthouses fixed in the great current of time, to warn us from the rocks and shoals that threaten shipwreck. He who heedfully studies their position and bearings, may more confidently hope to glide out into the great open sea of eternity, without having prematurely sunk his craft in the billows and eddies of time.

To enable one to recognize the events which may change the whole course of personal or national history, it is necessary that he study the indications that are always given. The Magicians of the East saw the star that heralded the natal hour of a Messiah, because they were watching by night. By the great mass of mankind the event passed unnoticed. When Napoleon dispersed the National Assembly, he was to all appearance but quelling a riotous outbreak. But it marked the era of Imperialism. The Rubicon was but a small stream, and when the legions of Cæsar forded its shallow waters it seemed but a trivial affair to them. But to Cæsar, who knew its significance, it meant either his entire destruction, or that he would be master in Rome, and sway the destinies of the civilized world.

The great physical eras of life are marked by unmistakable signs to him who is skilled in reading them. Nature never declines to reveal herself to the man who faithfully studies her methods. The changes which take place within the organism are marked by changes without, and there is no era in the life of the individual that has not its clear and unerring visible token.

It is said that Death once promised an individual that his life should be prolonged for many years, and that three signs of his approach should be given him before the grim messenger called again. In the course of time Death again presented himself before the now aged man, and claimed him for his own. The man demurred, saying that he had been promised a long life, but was answered; "Surely, fourscore years are the fulfillment of that pledge." "But," pleaded the old man, "I was promised three unmistakable signs of your approach." "They have been given," said Death "and you might have seen them any day for the past year." "But for five years," said the man, "my sight has been dimmed, so that I can see nothing distinctly." "Then," Death answered, "you might have heard them whispered to you at morning and evening." "But," persisted the poor wretch, "my ears have lost their power to detect sound." "Then," said death, "why have you not heeded the sign that has been given you every day at the table. Your teeth have communicated the warning to you with every particle of food that you have put in your mouth." "But my teeth have long since left me, and my taste is so dulled that I cannot recognize it by that channel," said the man. "Wretch" answered Death, as he touched him with his paralyzing dart; "By your own admission you have long since received your promised warnings. Your eyes have become dim, your ears are dulled, your teeth have parted from you. What plainer warnings of my approach would you have."

In watching for the turning points in our physical existence, there are no organs that tell the tale so unmistakably as those with which it is our special province to deal. They come with the morning of life, they leave at the sunset, and both their advance and retrogradation mark distinct periods in our life's history. At the opening of his course man is without them, because he has no use for them. His food must come to him already prepared. All his organs are feeble and undeveloped. He has not even sufficient strength to hold his head erect. His weak and helpless limbs refuse to bear his weight. He possesses little of coördinate muscular force. His digestive powers are as ineffectual as his muscular system. The pabulum that supports him must be received half digested, and the mother's milk is alone adapted to his undeveloped stomach. After birth there is a period of rest, which lasts for a short time, when one of active growth succeeds it, for as in the natural world there are alternate periods of activity and rest—the Spring, the Summer and the Winter—so in the physical world there are like times of advancement, and of consolidation of that which is formed.

Six months of slow solidification pass away, and the time arrives when the growing man enters upon another period of existence. The utterly helpless, almost unconscious term is left behind, and the child begins to take note of its surroundings. The upper part of the body is so advanced that it can now hold its head erect. Its vision becomes distinct, and it begins to exercise muscular control. Its intellect shows signs of awakening, and it exercises some of the functions of voluntary life. This new arousing is not entirely a gradual one. It is comparatively a sudden, almost startling change, like that which takes place in the springtide of the year, when a few sunny days see a miracle wrought, the buds swelling and bursting, and all the floral world shaking out its plumage of green.

Is this stupendous change in the infant, this marvelous era in human existence, unmarked by outward manifestations? By no manner of means, for coincident with it the first teeth pierce the gums, an outward and visible token indeed, of an inward and invisible change. The whole digestive apparatus has developed with the rest of the body. The child can now take nutriment that is a little more highly organized, and accordingly the mother's milk, which is its proper pabulum, assumes a new character. There is now more of the fat and less sugar. It would be utterly unfitted for the nourishment of a newly born child, for it has advanced in complexity with the growing organism. The first era of human life is completed, and it is marked by the presence of the first tooth.

Another period of rest and consolidation of that which is formed now succeeds, and the infant makes sure of the ground which it has gained. Six more months pass away, and another period of active growth succeeds, another springtime of development opens. The lower part of the body begins to grow. The brain assumes new functions. The digestive tract takes on fresh powers. The child gets a new stomach, and the mother's milk becomes yet more highly organized. The muscular system attains greater strength, and the helpless baby begins to help itself. A second era as distinct as the first has dawned, and the new development has the same index. The child has reached the age of twelve or fifteen months, and another dental organ is added to the four incisors already in place in each jaw. Helpless infancy is past, and the period of babyhood is gained. The change is a great one, but the era is not as marked as others of our existence. The food must still be half prepared by the mother, and her milk is as yet the only proper nutriment.

Once more does nature demand a rest, and six months again pass away. Then comes another period of energetic development. There is a marked change in the character of the secretions. The saliva begins to contain ptyaline as an ingredient, and assumes a diastatic power. The function of converting starch into sugar is assumed, not in its full perfection, but as yet imperfectly. The villi of the intestines undergo a change in their action. The gastric juice has powers quite unknown to it before. New functions are awakened, and a distinct era in development is marked, as usual, by the appearance of another tooth. The child is now perhaps twenty months of age. It commences to care for itself. It walks; it perhaps speaks with intelligence. It exercises control over its excretory organs.

But the digestive functions are yet far from being complete. Its food must still be prepared for it. Its locomotion is yet uncertain, and the child is subjected to a thousand falls and mishaps, because of the immaturity of its muscular system. Attempts to feed it upon highly organized food result either in continued diarrhœas and febrile disturbances, or in a permanent weakness of the digestive system, and the growth of a confirmed dyspeptic. All is plainly indicated to him who intelligently watches the course of events. The deciduous denture is yet incomplete. Nature is but preparing, paving the way for a masticatory system. Up to the time of the advent of the latest tooth, none fit for grinding had yet appeared. All that had previously been erupted were but cutters, incisors. It requires the whole apparatus for the perfect preparation of the food, and the denture was but half completed. The teeth that were most essential in trituration and insalivation were not in place, and this fact is indicative of a but partially completed era. The muscular system, the digestive tract, even the intelligence, were in the same imperfect, unfinished condition. Their advance keeps pace with that of the teeth, and the latter are a sure index of the condition of the former.

But with the cutting of the first of the deciduous molars there is a marked change. As these teeth are the largest of all that have yet appeared, their advent marks a more momentous era. Function is now strengthened ; new intelligences are awakened ; the stomach has added tone and the power to transform into sugar the starches that form the greater proportion of human food is materially advanced. This tuberculous molar seems especially intended by nature for the comminution of solid food, and for its proper admixture with the saliva, for I believe the latter function the more important of the two. The diet of the child may now be safely changed. It can digest that which is not already partially digested by the mother. It is in most cases now fully weaned. It begins a more active existence. Its stomach increases in capacity, so that it will hold enough for a number of hours' nutritive purposes. That of the young infant suffices for but a short time. But development as a child is not yet complete, for it lacks something of a full dentition.

Hence another period of slow development is a necessity, and then comes the last of the first teeth, and this marks the close of the period of infancy, and the commencement of childhood. The saliva has become a perfect fluid. The stomach is capable of digesting well organized matter. The muscular system is sufficient for all the needs of the young child. The intelligence is so far awakened that it can begin to comprehend the simplest of abstract questions. The child is complete—as a child. That period of its existence is rounded out. It no longer depends upon the mother for the preparation of its food. From this time, growth is a more gradual process, and the periods between the developmental eras are materially lengthened. Heretofore we have found that there were intervals of about six months between the completion of periods. Now we reckon them by the same number of years.

The stage of infancy has indeed passed, but it is succeeded by another incomplete period. The young human being can walk with facility, but its strides are not those of a man. It can reason, but its mental processes are inductive; it has not arrived at the analytical, or even the synthetic stage. It can digest its food for itself, but that is mainly composed of the carbohydrates, and not of the albuminoid elements. At the end of the sixth year there appears the first of the permanent, as at the end of the sixth month there appeared the first of the deciduous teeth. This is a most important era in life, for now the great liability to these intestinal disorders, the falsely called diseases of dentition, have passed away—not because the cutting of teeth is over, but because the advent of this, the largest and most important of the whole dentition of man, marks the period when the digestive apparatus is so far developed and perfected, that it can care for the highly organized food with which its infantile organs were unable to cope, but which too often was thrust upon them by ignorant and injudicious mothers and nurses. The terrible mortality of infancy is over. The child has escaped the deadly perils to which a majority of the human family succumb. Solid food is taken, is digested and assimilated, and the growth and consolidation of tissue goes on rapidly.

For another six years there is little change, save that which is incident to a period of steady, though comparatively slow development. Nature is preparing for another grand effort, perhaps the most momentous of our existence. The deciduous teeth, which will soon be insufficient for the necessities of the man, are gradually and by imperceptible processes removed, and larger and stronger ones take their places. Finally, this preliminary work all done, the proper preparations made, nature puts forth a supreme effort, and behold the opening of a new epoch. Now, for the first time, sexual characteristics begin to appear. The male separates himself from the female, and begins to assume a new relation to her. The second molar appears. The period of childhood has passed; that of youth, of adolescence is at hand. The larynx is developed in the male, and the voice begins to change. In the female the breasts commence to swell. It is the beginning of the era of sexual development. There are in both sexes indescribable longings and undefined anticipations of the greatest change that takes place in human life. The child is an epicene no longer. Functions hitherto unknown are rapidly awakening. It is a period of unrest, of abnormal appetites, of occasional disturbed function, of unsatisfied yearnings. The desire for food is a constant craving, for the immature being is all animal. The newly awakened passions are undisciplined, and continually lead their possessor into strange adventures. There is no retrospect in the life that now is, but a persistent looking forward to the close of the era when the youth shall become a man, the girl a woman. It is the commencement of the period at whose close the Romans wisely ordained that the vesture should be changed, and the boy assume the manly toga.

Slowly this development continues. Gradually is sexual function progressed. The signs of virility in the male, and of sexual perfection in the female, are perfected and established. Another six years passes away, and behold the last of the teeth appears, and dentition is finally and fully completed. The last, most important period in man's developmental history is finished. Sexuality is complete. He is fully capable of procreating his species, and the female of bearing young. The human being has entered upon the last of the progressive eras of existence. There is no further growth; there is no more of the awakening of new functions, for the round is completed. Man and his dentition have reached their climax together. Thenceforth there is to be another long period of consolidation, of strengthening of that which is formed, of active use of the intelligences now awakened, of the functions already born to man, of treading the highest summit of existence, and then begins decadence.

It is not my intention to follow the life history of man further. Development has ceased. The last grand era has been passed, and it was, like the others which we have considered, marked by the advent of a tooth, that must necessarily be the last. I need pay no special attention to the fact that the progress of this growth in some manner depends upon environments; that these eras, especially the last, are hastened by a warm climate and retarded in the frozen north. That is true of all development. The general law is that when one function is early called into action, all the others are influenced by the same precocity. If the boy or the girl reaches puberty at an unusually early age, the other developmental eras have also been hastened. If the teeth are cut before the usual time, it is probable that the whole digestive tract is in a like advanced condition.

Undue stimulation may cause premature development of organs or sets of organs. These are not, however, evidences of strength, but rather indications of weakness. The intellect, through abnormal conditions, may be awakened too early, and the child may exhibit signs of mental power that should come only with the regular and coördinate growth of the rest of the system. Such precocity will not be accompanied by the usual indications of development in the advent of the teeth, because it is something apart from the regular processes of nature. Unless there be a steady progression, with the ripening of all the powers and functions of the body together, it is an abnormal and unhealthy condition, and the lack of functional symmetry will surely end in a cutting short of the periods of healthy growth, and a final breaking down of the whole, from lack of sympathetic and harmonious action. If the teeth which should mark the advent of the epochs in man's life are erupted prematurely, and in advance of the periods which they were properly destined to indicate, their existence will doubtless be brief, for the ripening of the other functions upon which their nutrition and consolidation depends is insufficient for their support. The teeth that are occasionally found in the mouth at birth are usually soon lost. That man only is the perfect man in whom there is an even balance of the functions and organs. Progression must be synchronous throughout. Undue precocity is as much a diseased condition as retardation. If it be confined to a single organ or set of organs, it means that the disturbed functional activity is due to some untimely stimulation, and that it is at the expense of other organs.

Call up from the misty past the visions of your own experience as dental surgeons, and inquire if they do not in the main corroberate that which I proclaim. Summon as witnesses the instances that you have yourselves observed, in which teeth were cut long before the stated period for their advent, or were unduly delayed after it, and learn if their possessor had a complete and equally developed structure, and if he preserved it to a healthy old age. Were there not neuroses, and an unbalanced mental condition? Was not the physical growth incomplete, the stature low and the muscular system feeble? If not, then has your experience been at cross purpose with mine. It is only of him to whom the natural eras of life have come in their regular sequence, that it can be said that his "age is as a lusty winter; frosty but kindly."

All biographical history but confirms that which I assert. Alexander the Great was said to have had teeth at his birth, and he was a drunkard and a neurotic: Cæsar was born with teeth, and Cæsar was an epileptic. Richard the Third had teeth thus prematurely developed, and he was humpbacked. Where are all the child-geniuses that have astonished the world? Their flame of life burst forth with precocious brilliancy, but it soon went out in death, or early blight and decay of their phenomenal powers. Chatterton, "the marvelous boy, the sleepless soul that perished in its pride," the model of all precocious geniuses, also stands as their type in premature decay. The great eras of life must preserve their relative duration, must be marked by their accompanying outward signs, or the whole sequence of life is destroyed. An irregular dental development usually means an unbalanced physical organization. The healthy mind is found only in the healthy body. Who will not believe that Carlyle might have been capable of even greater things, had not his digestion been ruined by injudicious dieting in his youth, feeding with solid food before his teeth gave indications of the advancement of his digestive functions.

I would that I had the time, and you the patience, to enter upon a consideration of the lessons which we as dentists may gather from a study of these questions. I should be delighted to speak to you about the so-called diseases of dentition, and to convince you, as I believe I could, of the fact that the cutting of the teeth has nothing whatever to do with the virulence of the disturbances that sweep away one-third of the human family before they have reached the age at which the deciduous teeth should all be in position. But I will spare you this, though I am strong in the faith that I could more benefit the human race by teaching this faithfully, than I could by preaching the most astounding dogma that ever religious council formulated.

It is *not* an exaggeration when we declare that the duties which fall to the dentist are among the most important of those entrusted to man. Disease and pain warp the intellect, and dwarf the understanding. He who allays suffering, works for the better development of the whole human race. "Canst thou not minister to a mind diseased?" asked Macbeth. "Aye," answers the modern dentist. "By my art can I quiet the disturbed organs, soothe deranged function, liberate the mind pent by pain, and bring harmony out of direst discord." In the performance of this holy task in which we are engaged, I can only exclaim with Tiny Tim: God bless us, every one.

PAIN, ITS PATHOLOGY AND THE REMEDY.*

BY CHAS. P. PRUYN, M. D., D. D. S. CHICAGO, ILL.†

There are duties which are difficult of fulfillment pertaining to every position in life, and there are responsibilities attached to professional life, from which no man can assume to himself the right to shrink. In this dutious, but mistrustful spirit, I have ventured to accept, at the request of your programme committee, the appointment of essayist for this evening, upon the subject of Pain, its Pathology and Treatment.

While much has been written about the pathology of pain, very little is definitely known regarding any cellular change taking place within the brain itself or the various nerve centers to sufficiently account for the various manifestations of exalted sensibility that come under the term known as pain. During recent years a few authors have tried to demonstrate positive cellular change within nervous structure, but most writers upon the subject fail to discover any abnormal condition that might account for some of the various types of neuralgia with which we have to deal. This leads us to the question of, What is pain? We have all experienced pain in many different forms, and called by different names, for different kinds of pain, but it has seemed to me that the best definition that I could give of pain would be: An exalted sensation of a normal function perverted. Before such an assemblage as this, I would naturally be expected to dwell more or less upon that peculiar type of pain with which we, as dentists, have to deal; which is neuralgia of the fifth pair of nerves. The cause of this most distressing affliction is frequently so obscure that it is often almost impossible to definitely ascertain the true cause, and our patients are often subjected to prolonged suffering needlessly —and why? Because we too often neglect to ascertain the true diagnostic value of pain. When a patient is suffering from pain in any part, he is instinctively inclined to believe that he must also be suffering from an inflamed condition of that part.

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*Read before the Chicago Dental Society.

†The author of this paper is indebted to the writings of Dana, Hilton, Jacobson and others.

Pain, as we all know, is not in itself an indication of an inflammatory state, nor is redness, nor is swelling, for any, or all of these may co-exist without local inflammation. Increase of temperature, or heat, is the true sign indicative of a local inflammatory condition, and taking this as a single symptom, it is a most striking and valuable one in reference to the diagnosis as to whether the part is actually in an inflammatory condition or not. Pain in any part, when not associated with increase of temperature, must be looked upon as caused by an exalted sensitiveness of the nerves of the part, and as pain, depending upon a cause situated remotely from the part where it is manifested. In availing ourselves of these so-called sympathetic pains, I should like to displace the term "sympathetic," as something too ideal, and would ask you to consider such pains in their obvious, intelligible and more natural relation. I would ask you to regard them as resulting from some direct nervous communication, passing between the part where the pains are expressed and the real and remotely situated cause of the pain. I admit that we formerly estimated this subject too lightly, so that if a patient complained of pain between his shoulders, or anywhere else, we never asked ourselves what association of nerves would explain this pain, but, beyond doubt, this is the proper way of regarding this question. If the hidden cause of pain be in any one particular spot, it is only by tracing the nerve to and from that spot, that we can hope to arrive at the real cause of the symptoms, and so divest the cause of its obscurity.

It is impossible, I believe, to overrate the practical significance or overestimate the value of the simple statement regarding the relation of pain as a symptom of disease in forming the diagnosis of the kind of cause in which pain forms a prominent symptom. When a patient complaining of pain, applies for relief, we ought to seek for the real cause, rather than to simply treat symptoms. We ought not to put him off by saying: "This is a simple case of rheumatism, or temporary neuralgia," or, "You have been standing in a draught, or caught a little cold," or "Your liver is a little out of order," or, "You have inherited it from your father or great-grandmother," but we ought to have such a thorough knowledge of the human anatomy, particularly of the nervous system, that we would readily reason from effect back to the hidden cause, and by that reasoning convince ourselves thoroughly that if there is some external manifestation of pain of a part, that there may possibly exist along the track of the nerve which supplies this part, or from the nerve center, or centers, a possible lesion or injury that might very readily be the cause of the disturbance in a part remotely distant from the cause of the injury.

Now, external pain, or pain upon the surface of the body, if properly appreciated, may be considered oftentimes as an external sign of some distant derangement. If the pain persists—and does not depend on any transient cause—it becomes necessary to seek the precise position of the pain, and as soon as we recognize the exact location, we are enabled by a knowledge of the distribution of the nerve or nerves of that part, to arrive at once at the only rational suggestion as to what nerve is the exponent of the system. By following centripetally the course of that nerve, and bearing in mind its relation to surrounding structures, we shall, in all probability be able to reach the original—the producing—cause of pain, and consequently to adopt the correct diagnosis.

Patients judge of the position of their own disease most frequently by the situation of the most prominent painful symptoms or those most palpable to their senses, whilst we, as physicians, relying upon our knowledge of the true cause of the symptoms, judge of the seat of the disease by a just interpretation of the symptoms, through the medium of our knowledge of anatomy. We have learned by experience that certain symptoms may exhibit themselves at a spot far removed from the actual seat of the disease. This latter remark is peculiarly applicable and pertinent to many diseases that by reflex action exhibit themselves within the territory with which we have to deal.

A more intimate knowledge of the science of neurology and psychiatry would be of considerable service to us in explaining some of the various neuroses that present themselves for diagnosis and treatment. Subjective symptoms, while valuable, must be reinforced by objective symptoms as well. We should learn to readily differentiate neuralgia and neuritis, and while it may seem too much to ask that members of our profession should be familiar with all the varied forms of perverted nerve function as manifested in the multitude of nervous diseases, it does seem proper to expect that we should be sufficiently familiar with the whole nervous structure of the body as to be able to diagnose the more commonly diseased conditions of the nervous structure, even though we do not proceed with the general treatment required for their alleviations.

Neuralgia is generally a functional disease so-called, characterized by pain in the course of a nerve, or of nerves. It may be idiopathic, that is, developed spontaneously, or symptomatic, due to some known toxic cause or reflex irritant, or organic disease acting on the nerve. Thus a central disease of the nervous system, or a tumor pressing on the nerve may cause a symptomatic neuralgia. When, however, there is organic disease of the nerve itself, such as neuritis, the disease cannot properly be called neuralgia. It seems impossible, however, to draw the lines of differentiation absolutely. Neuralgias of all kinds make up about ten per cent of the nervous disorders for which the neurologist is consulted. The most frequent form is that with which we have to deal, namely, the trigeminal. Neuralgia never affects young children. From fifteen to forty-five years of age the greatest number of cases occur. Women seem to be more susceptible to this form of suffering than men. I think I may safely venture the statement that a greater number of mistakes are made in treating neuralgia of the fifth pair of nerves than in the treatment of all the other diseased conditions of the whole body. It is possible that I may be a little rash in making this statement, but from an observation extending over a period of twenty years in the practice of dentistry, and being familiar with general medicine as well, I think the statement will hold good. The very intimate relationship that exists between the eye, the ear, the teeth, and nose, should be a stimulus to us to pursue our investigation of diseased conditions that manifest themselves within the range of our calling, to those other portions of the body that by reflex action may be either the cause or the effect of that with which we have to deal.

It is needless for me to rehearse in your hearing the various reflex forms of disease with which you are all perfectly familiar, but it not infrequently happens that severe cases of cephalalgy may remain as a persistent trouble, from some slight pathological condition proceeding from the oral cavity. The one great therapeutic agent in the treatment of any or all diseased conditions, wherever manifested, is that of absolute rest. Having first definitely ascertained the cause, which is not always an easy thing to do, we must remove the same. Then, after removal of the irritant, whatever it may be, put the part, physiologically and mechanically at rest. In the treatment of all serous or mucous membranes, after the irritating cause has been removed, nature will set up her reparative processes, by throwing out a coagulable lymph, which, for the time being, acts as a protective layer to the subjacent parts, protecting from the various irritants. Then, beneath this coagulum, a new formation of healthy tissue is very apt to occur. We notice a similar condition prevailing during the repair of hard tissue in the exudation and formation of that which is known as provisional callus, which always occurs in the healing of fractured bones. I feel confident in saying that I cannot overestimate the importance of emphasizing the necessity of absolute rest, which is of infinitely more value than any or all the drugs mentioned in the whole pharmacopœia. While emphasizing the importance of proper attention being given to the local conditions and treatment, I would not underestimate the value of ascertaining the condition of the blood which supplies the part, neither would I overlook the nervous conditions that prevail; for without a just appreciation of these three, namely, the condition of the part, the condition of the blood, and the condition of the nervous system, we cannot very safely predicate successful results from our treatment.

As the history of unusual cases is always interesting, I will call to your minds the case of a gentleman that I presented before this society some three or four years since. If you remember, the case was that of anæsthesia of a portion of the roof of the mouth, extending from the mesial line in a semilunar form, and about the size of a silver half dollar, extending back to the first molar on that side, caused by the insertion of a bridge extending from the right central to the left cuspid, the pulps of these two teeth having been removed through openings which were drilled upon their lingual surfaces; and the pulps were removed by the knocking out method, and the bridge completed and inserted at the same sitting. This patient was somewhat neurasthenic at the time the operation was performed, and must have suffered considerably. The anæsthesia appeared almost instantly, and continued for a period of several months, until he became a complete nervous wreck at the time when I first saw him. The mustache upon the same side of the lip, extending up to the medium line, gradually died out, until not a hair was left on that side of the lip. The hair of the head embraced in the territory of the left side which is supplied by the auriculo temporal branch of the fifth nerve also came out. If you remember the case sufficiently well, you remember that we thought the only remedy for the trouble would be the removal of the bridge and the removal of the pulp canal fillings, which we felt sure in some way caused an impingement upon live nerve tissue, and by reflex action the different injuries were produced. The nervous condition of the patient was such that I found it impossible to do anything more than to cut off the attachment of the bridge at either end, but could not open up and remove the pulp canal fillings. The simple removal of the bridge, with constitutional and hygienic treatment seemed to produce a perfect cure at once, with restoration also of the hair and mustache within a months' time.

After a lapse of about three years severe neuralgic pains again set in. Another effort was then made to remove the pulp canal fillings, which was unsuccessful on account of the extreme nervousness of the patient. The only thing that we could do at that time was to remove the right central, which presented upon removal a piece of the orange wood wedge that was used in knocking out the pulp, and left projecting nearly one-sixteenth of an inch beyond the root. For some reason nature had tolerated this great irritant with comparative immunity from pain for a period of nearly three years after the removal of the bridge. The irritation had become so chronic that the right lateral was suffering from a very slight pericementitis, but in the weakened condition of the patient, extraction seemed to be the only remedy, when a complete cure seems to have been established. The interesting part of this case is the loss of the left half of the mustache and of the hair of the left side of the head, and the return of the same in normal growth and color within a few months after the removal of the bridge.

Recapitulation.—The pathology of pain is somewhat vague and undefined. My definition of pain is: An exalted sensation of a normal function perverted.

There can be no pain without a reason for it, any more than there can be an effect without a cause; and it is our duty to find the cause, even though it may be very obscure.

Pain in a part is not a positive evidence that a retrograde metamorphosis is taking place in that part, as reflex nervous action may explain the phenomena. Again, nervous structure, having a memory (so to speak) may, even after a lapse of years, and under conditions and environments apparently normal, recall the former uncomfortable sensations almost as acutely as in the first instance.

What might be a severe operation to one patient, sufficient even to produce severe shock, in another case and with different peculiarities and idiosyncrasies may be tolerated with slight discomfort, which leads me up to the point of saying that we should be sufficiently familiar with physiognomy and the reading of character, and the capabilities of a patient to endure pain, that with a slight subjective examination we might readily determine the extent to which it would be wise to trespass upon the sensibilities of our patients.

In diagnosis, prognosis and treatment, *always* remember these three things, which were so persistently taught by the late lamented Dr. James Adams Allen, viz: the condition of the part, the condition of the blood, and the condition of the nervous system.

The Early Differential Diagnosis of Tumors.*

By H. H. Schuhmann, D. D. S., Chicago, Ill.

Mr. President and Gentlemen:—I fear that a great many of you will be disappointed this evening by the paper I am to read. I know I pledged myself almost a year ago to inflict a paper on you, but the date had slipped my memory entirely until your Secretary kindly called my attention to the fact that my day of execution was rapidly approaching. I had not sufficient time then to prepare much of an essay and under the impression that the subject of differential diagnosis might be of interest to you, I took some of my notes for a lecture I delivered to my medical students last year, and tried to make some head or tail of *it*. The paper I intend reading is not an essay on PATHOLOGY, but on *differential diagnosis*, and I will say as little about the pathology of tumors in connection with it as possible, in order to impress you more forcibly with the thoughts connected with the subject proper—*diagnosis*.

It is my aim in these lines to draw attention to the necessity of differential diagnosis between malignant and nonmalignant tumors. Since my hospital connection, I have been impressed with the ignorance of physicians at large on this subject. The capability of coming to an early decision in these diagnoses usually means the saving of a human life, and it should be the aim of every medical man to thoroughly acquaint himself with such necessary knowledge. In studying the literature existing on this subject one of the most lamentable difficulties is found in the wide differences of opinion of surgical writers on the malignity of certain growths. Most text-books classify tumors in three classes: Nonmalignant, semimalignant and malignant. To the first class belong all those abnormal growths capable only of creating local mechanical disturbance, such tumors as are brought into life by some reason, causing an outgrowth of tissue of the same kind as that composing the affected part. For example, we may have a growth on bone, an osteoma, or on cartilage, an enchondroma, on fibrous tissue, a fibroma. All of those imitate exactly the type of tissue from which they spring, and produce no other changes in the surrounding part than such as would result from pressure or tension, not impregnating the system in any way, with any particular vice or disease producing fluid, and are consequently annoying but not injurious unless the vital functions are interfered with mechanically, by their presence. Occurring on the jaws they may interfere with mastication, deglutition, or possibly with respiration, but are otherwise harmless.

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* Read before the Chicago Dental Society.

On the other hand we have tumors such as belong to class C, which are not content by simply occupying part of the jaw but grow into it, and branch out into the surrounding tissues, blending with them so as to lose all visible outlines. Not merely crowding the tissues before them, but growing into them, with their poisonous elements disseminating their infection through the blood, setting up the same infectious tumors in the lungs, liver and other parts of the body, until the patient finally succumbs to their exhaustive influence. As to class B, termed semimalignant tumors I will say but little as that is the misleading term, causing all the trouble in diagnosis, and the study of diagnosis. As cases of class C., *i. e.* malignant tumors, present themselves, we have all grades of infection. Some grow very quickly, and without much loss of time lead to great destruction of tissue and general infection. Others grow more slowly, taking years to accomplish the same end all killing.

We find tumors in text-books among semimalignant tumors that slowly cause destruction and invasion into surrounding tissues, but still they present such a course, it is death ultimately but slow death. For instance, in many text-books sarcoma is classified as a semimalignant growth. The word sarcoma signifies flesh. The tumors are by no means made up of muscle, yet are constituted of exactly the same kind of cells that make muscular tissue in embryo, what are called embryonic connective tissue cells.

There are three varieties of sarcomatous tumors. One is composed of round cells, another is made up of elliptical oat-shaped cells called spindle cells and the third variety consists of irregularly shaped large cells containing a small cell structures in their interior, called giant-celled sarcoma. Now despite the fact that sarcoma is classified in most books as semimalignant, the round-celled is equally, if not more malignant than cancer, and even the spindle-celled may exhibit most malignant attributes, the giant-celled being the most innocent. It seems as though it would be best to do away with this misleading term semimalignant as the *degree* of malignity is of entirely secondary importance. Tumors are either malignant or nonmalignant.

Another important distinction is brought out by the effects of these growths on surrounding tissues. An innocent tumor once thoroughly removed does not recur. Not so with the malignant, which in all probability will return, growing faster, and in more malignant form than before any operation; the disease carrying cells having invaded all the surrounding glands and lymphatics, possibly having already disseminated throughout the system.

It might be well to say a word or two about cancers in this connection. We no longer ascribe carcinoma to a local expression of a bad blood condition, nor to inheritance, such as was done not many years past. The poisonous cells of cancer do not preëxist in the blood to be deposited later at some particular place to form a malignant tumor. It is not my intention in this brief treatise to go into any minute descriptions of any of these morbid growths, but it will suffice to point out the distinguishing features of malignant and nonmalignant tumors, to study their causes, and to emphasize the need of early appreciation of their character and the necessity of their early treatment. The malignancy of tumors of the jaw seems to depend greatly on the seat of their origin. We have such growths as seem to spring from the gums, and secondarily invade the bony structure—others follow just the opposite course, arising from the periosteum and bony structures and from there growing into the surrounding soft tissues. The rapidity of growth of malignant tumors also depends greatly on their location originating on the upper or lower jaw, owing to the difference of relation of the two to surrounding structures.

Let us first consider the probability of malignancy or non-malignancy of tumors from a standpoint of their location, although such means of prognosticating must be taken into consideration, not blindly, but most carefully, as you will note by the examples I will cite. As the very first pathological growth, considering it from a standpoint of location, I will mention true hypertrophy of the gums, a condition often misapprehended, consequently treated in a wrong manner. The disease it is most likely to be confounded with is tumid gums, the two differing but very little in external appearance, but very markedly, both histologically and pathologically. In this case the question of " seat of origin " becomes a rather complicated one, and a very important one ; the difference of prognosis depending entirely on it. True hypertrophy of the gums arises in the periosteum, and yields to nothing short of the removal of the alveolus. Occasionally we meet a hypertrophied condition which seems to have but very slight connection with the periosteum, and a thorough scraping of the underlying bone will suffice for a cure. But these are minor details which I did not intend to mention here. Tumified gums are usually treated without the use of any knife, and will yield permanently to local and systemic treatment. Now in this case it might be somewhat difficult to derive any benefit from an effort to investigate the "source of origin," but by considering for a moment the histological difference of the two, a ready means of diagnosis is easily found. For the benefit of those whose knowledge of histology may have effused somewhat since their college days, I will say that in true hypertrophy we have an increase of cells, but in tumified gums we have simple enlargement of the cells present due to overfilled and engorged vessels. The simplest means to make a differential diagnosis between the two is to prick the gums with the fingernail or some sharp instrument, when profuse bleeding will very conclusively show the condition of dilated blood vessels—soft succulent cells of *tumid* gums—while little bleeding, hard, elastic tissue shows the hypertrophied condition. The latter is often produced by ill-fitting artificial dentures; especially might this be the case in elderly people, whose tissues are more likely to respond to constant irritation than those of the young.

Another innocent tumor of the gums ought to find mention here. Papyloids and polypoids, both usually spring up between the teeth, have thin necks, bulbous ends ; they are very readily removed, growing from the surface soft tissue, as they do, by wire loops or by the cautery. The polypoid variety is more vascular than the papyloid and bleeds on the slightest irritation; they may be tied off, or at times even be removed by the finger-nail. They form a class of tumor which has the peculiarity of occasionally returning in certain females during each pregnancy. These are some of the mild forms of diseases of the gums. Still, following up our consideration of tumors from a standpoint of their origin, let us now consider a growth springing from deeper tissues and then spreading through the gums growing faster than the aforenamed varieties, soon assuming a more morbid appearance.

I refer now to epulis—which, although the name implies growth upon the gum, is a tumor originating in the *periosteum*.

Very frequently these tumors develop collections of bone cells, at times even this formation of bone becomes quite marked, the whole tumor developing into a cartilaginous mass. This tendency to organization of bone is peculiar to all sarcomatous tumors, and is one of the essential characteristics of that kind of tumor formation. There is a variety of epulis though very different in consistency, being made up of soft succulent giant cells, breaking down easily, and assume very quickly an angry, malignant appearance, strongly suggesting cancer. Both of these epulide tumors originate from the periosteum, and, although they differ considerably in their histological make-up, their ultimate result is the same, they are malignant unless timely and thoroughly interfered with.

The next valuable point to be looked for in making a differential diagnosis (besides the seat of origin) in these tumors lies in the distinctness or indistinctness of their outline. You will find that these tumors arising from the periosteum all present this one necessary symptom of malignancy a diffused outline; it is almost impossible to find the extent of their invasion into the jaw, and to prevent the recurrence of the growth even after its most thorough removal. It is needless to say that any attempt at operation for any of these conditions must be carried out in a liberal way. This unrestricted growth of abnormal cells and their primary origin being in the periosteum mark their malignity. There are times when these tumors even with such clear diagnostic points, become difficult ones to prognosticate, and it is at these times when the thorough student and careful practitioner will be amply repaid for a little care. These excrescences are liable at times to strongly simulate innocent polypoid tumors, having as they have, long, slender pedicles, which pedicles though originate from the periosteum spreading out over its surface and invading the bone and the growth is sure to recur unless both periosteum and bone in wide range have been included in the thorough extirpation. The cause of epulis is usually some constant long continued irritation, although the same may be a mild one. Sufficient reminiscences will arise in the mind of every physician at the mere mention of the word irritation; if we in all these cases could appreciate the source of irritation and could remove it we would at the same time abate and resolve all serious consequences. Unfortunately we are not often enabled to do this, at least not at the proper time. The theory of the greater frequency of these tumors in women than in men if it holds true at all, which in my mind is very doubtful, probably can be ascribed to the greater timidity of women to have old irritating, decaying tooth stumps extracted, and their ability to stand and bear pain longer than men without seeking medical aid therefor.

The soft ulcerating epulis is the variety demanding most thorough removal and definite prognosis and diagnosis. It may be well right here to say a few words fittingly of a tumor which at first appears in a far more innocent garb than even this dangerous form of epulis—apparently a mere ulcer. Dentists are much to blame in many cases, for not recognizing these ulcers when they come under their observation, as they often do, before the ulcer advances, developing in the well-known manner into true cancer or carcinoma. It is high time that dental colleges should begin to lay more stress on the study of oral surgery, which branch, though it was always supposed to be their principal study, in many of these institutions has been most shamefully neglected, both clinically and theoretically.

To return to the subject: The sore appears at first as a simple ulcer, perhaps caused by some decayed stump, either on the gum or tongue. Unlike an ordinary sloughing sore, it shows no tendency to heal under treatment, but, on the contrary, the borders become thickened, and the base adherent to the bone beneath.

The primary seat of cancer is not on bone or periosteum,(like epulis), the base of the ulcer becoming adherent, and gradually invading these structures only secondarily. When twenty years ago some German pathologist made this broad statement, it created quite a stir in the medical profession. Cancers of the upper jaw being held up as examples positively disproving everything to the contrary. To-day it is positively known that cancer does not arise from bone.

In the upper jaw there are but two locations from which cancer is liable to spring, as aforesaid, from the gums and most frequently from the mucous membranes lining the antral cavity. Beginning each time as a simple ulcer and gradually eating its way into the bone. The malignant infiltrating tendency of the sore on the gum is shown by the thickened firm edges and its immovable cases. If at any time an ulcer on the gum refuses to heal in ten or fourteen days it should receive prompt surgical attention; should this precaution be neglected we may expect bone invasion. The next apparent symptom of the malignancy of the ulcer is the loosening of the teeth, which occurs after the vice has begun to invade the osseous structures. Even at this stage radical surgical interference is quite sure to be crowned with success, but the operation must be a radical one and include a large range of adjacent tissues.

As to cancer originating in the antrum of Highmore—cancer in its beginning does not manifest itself by any swelling, and in the antrum the swelling which follows lancing—osseous remains hidden from view for some time yet; so that by the time these cancers produce a change in the outward appearance they usually will have undermined the entire structure of the maxilla and will have spread in every direction. Its first sign very often is a violent toothache. If in such cases the tooth be extracted it will be followed by a flow of blood and unusually free hæmorrhage, the toothache meanwhile remaining unrelieved. A probe should be introduced into the open socket and great care used not to mistake the condition for necrosis. The electric mouthlamp in these cases serves an admirable aid in definite diagnosis. Should the tooth still be on hand a section of the adherent fungous mass should be microscopically examined. After a time fungous masses will grow out of the socket from which the tooth has been taken, or perhaps by this time fistulous openings will have formed into the nose, on the palate, or perhaps externally, through which fœtid pus is discharged. The odor of a cancer is *very fœtid* and markedly assists in making a diagnosis.

The rapidity with which cancers are liable to spread is phenomenal. Butlin removed the superior maxilla within seven weeks after the first manifestation of the disease only to find the bone entirely destroyed and sinuses burrowing into all the neighboring muscles. Under these circumstances it is evident that if any attempt be made at an operation that it must be carried out on a most liberal scale, and nothing short of removal of the entire maxilla will answer after the disease has become evident by any external manifestations.

To disclose the extent of a malignant disease, which so cunningly conceals its presence, it evidently is necessary to examine not only the mouth, but the nose, orbit, and indeed, even the throat. The electric mouth lamp will aid very materially in such a search.

Before closing this treatise, if time permits, I will say a few words in regard to a class of innocent tumors of the jaw. I refer to cysts. According to their manner of origin and development we have simple cysts, dentigerous cysts, and multilocular cysts. Simple cysts of the jaw are always connected with unerupted well-developed teeth. It occasionally happens that the germs of teeth become displaced, and are prevented from erupting; it is around these that simple cysts are found to form. I hurry over this part of my subject as time will not permit to go into detail. These cysts grow very slowly, are painless, and in expanding their walls become so attenuated and thin that they crackle like parchment under pressure of the finger, their diagnosis being very clear.

Dentigerous cysts are caused by irritation from *undeveloped* teeth. The teeth may have been misplaced or inverted or through some shock or disease prevented from developing at all. These tumors grow very slow and are easily diagnosed as nonmalignant tumors having *all* the characteristics of nonmalignancy. A missing tooth if it has not been previously extracted is another aid in the diagnosis of this class of tumors, although it should not be forgotten that supernumerary teeth are liable to cause these tumors as well as any of the natural teeth. The treatment is simple; the cavity should be thoroughly opened, cleansed, and allowed to fill with granulations.

Multilocular cysts are not of dental origin but are due to an ingrowth of epithelial tissue covering the gum; it is true this ingrowth may be caused by decayed or otherwise irritating teeth.

They are usually located in the lower jaw; and as the name implies are made up of a large number of small cysts separated by firm bony walls. The contents of cysts vary in consistency from limpy watery liquid to a cheesy mass.

As to hard nonmalignant growths and as to cartilaginous and osseous tumors but little need be said here; they are easily diagnosed and are always nonmalignant.

Sarcomatous tumors have been mentioned before but in order to make the differential diagnosis between them and carcinoma still clearer I will add just a word more. The seat of sarcoma is somewhere in connective tissue, that is in periostial membrane, bone etc., while cancer never originates in any other tissue than such as belongs to the epithelial order. Sarcoma of the lower jaw may appear either under the periosteum or between the two plates of bone, named respectively subperiostial and central.

In sarcoma of the body of the jaw we first note a slight fullness of the face over the region of the antrum; in examining the mouth the growth may be seen overhanging the canine or bicuspid teeth. The mass is usually composed of elastic tissue and its development is accompanied by intense lancinating pain. The lower eyelid becomes puffy, the nasal duct closed and pressure on the lachrymal duct will cause the tear constantly to flow over the cheek. Sarcoma as a rule is a disease of early life and is mostly caused by some external violence, while cancer is a disease of advanced age and is caused by long-continued irritation.

These are some of the keynotes in differential diagnosis of tumors liable to occur in the jaws. I hope that I may have said something which will assist some of those present in clearing up some subjects over which they may have been in doubt.

CONDITION OF DENTISTRY.*

By C. H. Sippel, D. D. S., Chicago, Ill.

It seems to be the prevalent opinion that dentistry is a lucrative business. The public looks upon the dentist as a cold and relentless extortioner. Our dental schools are crowded to the doors with students hilarious with anticipations of their brilliant future. Dentistry is synonymous with opulence. And how this idea has taken possession of the public has always been a mystery to me. When we turn from these popular whims to sober reality we find the conscientious dentist hampered with serious disadvantages and as a rule, find him financially a failure. Dentistry, in my estimation, embodies more disagreeable and objectionable peculiarities than any other calling on the face of God's green earth. What does dentistry hold in store for an ambitious, talented young man? It can offer him neither honor, fame, nor wealth.

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*Read before the Hayden Dental Society of Chicago, November 21, 1892.

Considering all the reverses with which the honest dentist meets, his emolument, at good prices, is certainly nothing extraordinary. The limited number of years which he can devote to his professional work is one of the principally discouraging features. When the physician or attorney is just in his prime, ripe with knowledge, proficient with experience, and just reaping the harvest of his reputation, the average dentist with impaired eyesight, and an overtaxed nervous system is compelled to retire. Unlike the merchant, he cannot expand the scope of his business by investing his savings, but his income is absolutely confined to the amount his hands can earn.

What is there in dentistry that will stimulate a young man to scientific research, intellectual advancement, and development, since the mental invalid, and the dishonest rake, prove themselves, to a degree, successful competitors of their carefully educated neighbor? I heard of a dentist who had graduated ten years ago, and since then hadn't seen the inside of a book; and yet was considered in every respect, a successful practitioner.

To what degree is genius paid in dentistry compared with other professions? The individual who lingers between life and death is going to get, whom he believes, the best medical talent absolutely regardless of cost; because his life depends upon his physician or surgeon. The criminal who stands in the shadow of the gallows, imagines the hangman drawing the cap over his face and placing the rope around his neck is going to employ the best legal talent within his means, because he knows that it rests largely on the ability of his attorney whether he will have liberty or the iron cell, life or death. While the person with an aching tooth, if it should require any particular skill to restore the angry grinder to a useful and healthy condition, thereby entailing a little cost, will have it extracted without further ceremony. And almost any idiot can do that. It is only a question of resistance and force. If the force overcomes the resistance the tooth is going to come out. Extraction is a Godsend to the dental quack. It comes to his rescue when his ignorance would otherwise be exposed. With it he covers up all his blunders and incompetence. While the quack physician, who is called in to treat a disordered stomach and finds that the derangement is of too complicated a nature for his meager understanding, cannot say, "That stomach is incurable and therefore we must extract it." Or if the average individual thought as much of his teeth as he does of his stomach the quack would not find dentistry such a fertile field and could be put to flight more easily.

In the older professions the supreme question is: "Is he an able man?" "Can he save my life?" "Can he cure this dreadful disease?" "Can he win my case?" In dentistry the first and all important consideration is: "How much does he charge?" "Does he possess the undaunted faith of an Abraham, the fervent zeal of a Peter the Hermit, and does he belong to the Young Men's Christian Association?" "What are his political beliefs?" and finally comes the meager tail-ender: "Is he a pretty good dentist?"

Of course people will never think as much of their teeth as they think of their lives, and therefore we cannot expect that dentistry will ever invite the best talent, and will ever stand abreast with medicine or law. But if people were all sufficiently intelligent to realize that their teeth are essential to good health, comfort, and beauty—if all people understood the physiological laws sufficiently to know that the stomach cannot perform both the functions of a sausage grinder and a digestive organ at the same time—if all people were of a sufficiently reflective nature that they would intelligently reason from effect to cause—if they could see an indirect cause as well as a direct cause, dentistry would to-day be in its natural position and the people would be more anxious to employ the skillful and intelligent dentist no matter whether he attended the class meeting regularly or not.

But how highly do people value their teeth to-day? Since the New York dental parlors have advertised full sets for two dollars, that has been the average market price *ad valorem* and without a tariff. How people in this stage of civilization and enlightenment can so underestimate the value of their teeth is certainly surprising. How often will intelligent people—teachers of our public schools who ought to know that the oral cavity is one of the most important parts of the human anatomy, distractedly ejaculate, "Oh, that's an awful amount to put into my mouth!" while they pay double the amount to the tailor or jeweler, etc., twice a year without the slightest complaint. Some time ago I had a young man in my chair who wore an opal scarf pin worth $150, and had his upper incisors filled with black amalgam. Why, did you ever stop to think that a barber gets more money out of the average man than a dentist does? The fact is, people consider every cent paid to the dentist as absolutely thrown away or as an expense which should not be. They expect to clothe themselves properly. They expect to enjoy luxuries. They consider these expenses as natural of course, but when it comes to the teeth they are not willing to tolerate a heavy expense.

Again, people know so little about the nature of dental operations that they cannot discern good from poor work. How can an ordinary individual distinguish a gold filling inserted by mediocre talent from one inserted by the most adroit genius. Excepting perhaps by a test of long years. And if the former during that time should fail and our patient is mindful of the fact that conditions alter cases he is likely to infer that no one could have done any better under the same circumstances. People enter places of business, observe that there are different grades of each commodity and from their mere animal instinct understand that the superior quality costs the most money. They see that the work of a certain artist is far superior to that of his neighbor and therefore as a matter of course expect to pay him better prices. That the most skillful mechanic should receive the best pay, they regard a law of natural consequence. But when it comes to dental operations they will not adhere to this rational discrimination but it almost seems as though they intuitively regarded them all alike. How one dentist can possess the impudence of charging more than his neighbor is to them the most mysterious problem of life. It sometimes seems as though they could with less difficulty grapple with Kant's nebular hypothesis or enter the profundity of metaphysics than solve this strange enigma.

When a certain class of people in this city become dissatisfied with one quack they will patronize a different species but one of the same genius and experience the same result (which logically follows from the axiom that "Like causes produce like effects.)"

They drift from one dupe into the hands of another and finally come to you discouraged and firmly determined to have all of their teeth extracted. You laugh at their foolish idea. You tell them that their tooth structure is good and that you can restore those teeth to good, durable, and useful servants. And the reply will be, "That's just what the other fellow told me."

This of course is very encouraging to the honest young dentist who has just completed his course with honors and is now prepared to receive compensation for the time, money, and faithful hard work it has cost him to acquire his knowledge and skill. It suddenly dawns upon him that the charlatan has the upper hand and that the profession for which he has carefully prepared himself, with the anticipation of doing an honest and upright business, is filled to the brim with empiricism, knavery and thievery.

These terms are by no means too strong. The other day I had a frail girl in my chair for whom one of these unscrupulous rogues had inserted a cement filling, in reality worth nothing, but charged her $3.00, making her believe that it was a new and very expensive filling material. The young lady has very poor health and sewing is her only means of support. Now what is the moral difference between such a putrid piece of human corruption and the confidence man who entices his victim to the lake front for the purpose of knocking him down and robbing him? I don't believe that the average highwayman is cold-blooded enough to rob such a helpless creature. In my estimation, we ought to have legislation against the one as well as against the other. To say that the patient had no business to patronize such a man in the first place is no excuse, since the dentist has no more right to take advantage of the innocence and ignorance of his patient than the confidence man has a right to impose upon the innocence and ignorance of his victim.

Furthermore, a person who enters a gambling den knows what to expect, and hence is on the alert, while one who enters a dental office is not in an apprehensive state of mind, since he regards the proprietor's permit as ample proof of his qualifications and moral standing. A dental diploma ought to be revoked upon sufficient proof of misdemeanor. As it is the present permit is a certificate which entitles the holder to rob and outrage the public.

A word in regard to advertisements. I have no particular objections to advertisements that do not misrepresent the truth. If a man really wants to do good, honest work for little money, and desires to tell the public so, nothing but his dignity can be questioned, and I do not see anything so very reprehensible about that. But advertisements which are deliberately planned to pervert the the truth, to deceive and decoy people who cannot be expected to know any better, should not be tolerated.

As we walk along the streets we meet among other designs calculated to exhibit the dignity of our profession, large glass cases filled with artificial and extracted teeth. Some of our larger institutions set apart special days for extracting free of charge. Cards or tickets are distributed on the streets which entitle the holder to a twenty-five per cent or fifty per cent discount for all work done. Our papers are filled with advertisements of the most pernicious character. Advertisements of dental work done in exchange for wood, coal, rags and old iron are frequent.

Talk about dignity! Why I sometimes think the public scavenger possesses more dignity, and certainly better principles than a great many constituents of our so-called noble profession.

Dentists object to being classed as manufacturers. And yet do manufacturers resort to such mean, Liliputian, and diabolical means of obtaining a living?

For this humiliating condition of dentistry I largely blame our dental schools. Recognizing the fact that dentistry offers such peculiar opportunities and advantages to the dishonest quack they ought to be especially careful whom they admit and graduate. A great many of our schools, however, are entirely too eager for money to be mindful of the good of the profession at large. Students who, in the first place, are not qualified to meet the preliminary requirements are matriculated and graduated without serious mental exertion. In my estimation our colleges should at least require a thorough high school education for admission. Mental development and culture should be required. To my mind, the student whose mind has been disciplined and ennobled by the intellectual drill of a collegiate course before he enters the dental school will never stoop to the infamy and shame that some of our present dental graduates do. He would certainly value his education too highly to work for such pauper wages.

Again, our colleges engage in advertising almost as extensively as the most proficient empiric and their students can but bear the legitimate fruit. Imagine the effect a lecture on professional ethics must have on a wide awake student, who while listening to the eloquent words of professional dignity recollects that the external of the very building in which he is seated is decorated with all the quackish signs and advertisements conceivable to the human mind. I understand that the faculty of the ——— College of Dental Surgery contemplate turning the second year students loose to prey upon the community during next summer's vacation in open violation of the law. This, if true, certainly ought to materially lower every respectable practitioner's estimation of that institution.

If our profession will ever be a vocation of high standing and dignity, dentists as a whole body must be earnest, conscientious and thoroughly educated men. Men that will not stigmatize each other. Not such a heterogenous conglomeration of which two will tear down the little good one can build up, but all must work in happy harmony to the benefit and enlightenment of mankind. To our colleges we turn our eyes for such a corps of practitioners, but will look in vain as long as they are managed and engineered by motives of greed for money and not exclusively for the purpose of benefiting humanity at large.

THE YOUNG DENTIST'S SPHERE OF USEFULNESS.*

BY E. D. SWAIN, D. D. S., CHICAGO, ILL.

As far back as the 22d of November I received from Dr. Ottofy an invitation to this very pleasureable gathering, and I was sorry, as I have no doubt you will be, that attached to this invitation was a string, which was that I should address you; and the text given me was, "The Young Dentist's Sphere of Usefulness." I acknowledge I could not see in that the material for much of an address, so I showed it to some of our mutual friends, who seemed to be as bare of ideas as I; finally, one man did say, "That Ottofy is a great fellow. A man who speaks three or four different languages, thinks in as many more, and is never quiet in any of them, is very apt to ask us hard questions." Then I searched the books, but with no better results.

I could find any amount of good advice to young dentists from these sources, but in no case could I detect that their "sphere of usefulness," as practitioners varied especially from that of the men who had been in practice almost half a century; and so I say to the young men, that in our duty to our patients, in our duty to the community with which we have cast our lot, in our duty to our profession, we seem to be compelled to follow in about the same line, with this exception: It is a duty of the older men in the profession to give good advice and set a good example in all the duties mentioned above, and it is the duty of the young men to follow such advice and examples so long as they are good.

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* Read before the Hayden Dental Society of Chicago, January 16, 1893.

Therefore, having reached that age which makes it permissible for younger men to speak of me as among the old men, and having practiced and observed the changes which have taken place in our profession for almost forty years, I shall assume the right to make a few suggestions, believing that if adopted and fully lived up to, the young dentist will have entered that "sphere of usefulness" which in the end will prove advantageous to his profession, and leave with him in the end that feeling which comes from knowing that he has lived for others as well as for himself.

Practically, every man should with the beginning of the day ask himself:

"How shall I live to-day?—
The day just now begun,
So, when the sun is sinking low,
My heart can say, 'Well done.'"

Theoretically, to be an ideal professional man, one should have little or no thought about his income; he should treat the rich and poor alike, doing for each what his best judgment dictates; practically, in our profession, we cannot do this. Neither are other and older professions setting us a very good example in this direction. Materials used by the dentist are mostly of that character which if made into the coins of the realm would assist in making the female equine quicken her pace, and so we are compelled to secure enough to satisfy our landlord, the manufacturer, and buy the bread for our families. Theory may be good when it does not interfere with our daily necessities.

The physicians of both soul and body probably come nearer complying with this high professional code, than any other people, but sincerely, the above should have a place in every man's conscience, and he should, so far as possible, let it be one of his moral principles in practice.

Next to having established himself in his moral bearing toward his patrons, comes the necessity of, as nearly as possible, perfecting himself in his knowledge of the principles and science underlaying his profession, and perfect himself in the manipulative parts of it so as to do always what is best fór his patrons.

I was once present at a banquet tendered General P. H. Sheridan, when one of the speakers eulogized him very highly, mentioning his brilliant campaigns, consequent rapid promotions, etc. In his reply, the General said, in that hesitating manner so peculiar to him when addressing an audience, that he would give the secret of his success; so he says, " When I was made a Lieutenant, I said to myself, now I will make of myself one of the best Lieutenants possible. Upon my promotion to Captain, I will be one of the best Captains in the army; and so on until I became a General commanding the Army of the Shenandoah "; then he says of his campaigns: " I always managed to learn how many men my opponent had, how they were armed, how provisioned, the amount and quality of their ammunition, how many cannon they had; then I got more men, better arms, more provisions, better and more ammunition, more cannon ; then I went out on the campaign, found the enemy, and succeeded;" closing by saying " any man can reach success in the same way."

I trust it is not necessary for me to draw the moral from this story, for the benefit of the young man in our profession, who is earnestly seeking for his greatest " sphere of usefulness."

To be professional, one should avoid all appearance of soliciting patronage. There are numerous and legitimate methods by which one can place himself and his attainments before the people; but to always " talk shop " when outside your office, either with intimate friends, or especially at social gatherings, is not in good taste; neither is it apt to produce the best impressions upon the afflicted parties. A gentleman in my office not long since inquired regarding the qualifications of a very excellent and well-qualified, young practitioner, located in one of our larger suburban towns. I replied, as the above language would indicate, if anything a little stronger.

"Well," replied the gentleman, "I am glad you speak so well of him, but I have no confidence in any young man who is constantly ' tooting his own horn,' and he can never treat me or my family. He makes me too tired."

The young dentist who needs to advertise himself, can best do so by close application to business; have no idle hours; when not working for a patient, either spending his time in reading, or preparing for the patient he expects; and by no means should he spend it at the hall door, at the foot of the stairs leading to his office, posing for the admiration of passing women, or envy of the callow youth who looks forward to the day when he can wear a high silk hat and look professional. Take an active interest in the best of the local societies; you will be surprised to learn how soon your friends and neighbors learn of your whereabouts, at such times, even if the local paper has not announced the fact. If legislation for the *benefit of the people* (and dentists never ask for other) is being agitated, endeavor to have your name and influence appear to be on the side of right and conservative advancement, with good for the greatest number, and not on the side of selfish personal interest, and after the battle tell me what comes to you from your friends and neighbors, whether it be approval or unfavorable criticism ; tell me whether by reason of your actions, those people of your community, whom you have wished were your patrons, do not speak more kindly about, and to you, and soon surprise you with their patronage. Tell me if you are not conscious of a greater and better manhood, and if you do not feel that the noblest men in your profession are really more to you, not only in sentiment, but in the actual intercourse of every day life.

The young man seeking for his greatest sphere of usefulness, should have no fear of the older men in his profession. Old men's minds are sometimes preoccupied ; old men have a large acquaintance, and you should not jump to the conclusion that because on all occasions they do not approach you with a "hail fellow well met" air and expression, that they have other than the kindest feelings toward you. *Never* hesitate for a moment to ask the "old man" for advice, or to take your patient with you to his office for consultation. Old men often know from experience what you cannot learn in college or get from books, and you do not know how you awaken his vanity and stimulate his affection for you when you allow him to air his knowledge thus gained. Do not fear that he will try to steal your patient, or say one word that will weaken his confidence in you or your methods of treatment; instead, believe that if given the opportunity he will speak strongly in your behalf, thereby strengthening the good will and opinion of that patient.

I have observed for some years one grave fault in young practitioners, which I believe to be, as a rule, contracted while a student in our dental colleges, that is a seeming disregard to the keeping of appointments with patients; nothing can be more ruinous to one's reputation; I mean not only failing to be in the office, ready to receive your patients, but, also, that worse fault of keeping one patient waiting while you make or finish an operation for another. In a profession like ours, we cannot always measure the time necessary to complete an operation; still we can come so near to doing it, that but little time will be wasted by ourselves, or the following patient. We require remuneration for broken appointments and consequent loss of time; why should not we be made to pay for the hour we compel a patient to wait for us? Setting a good example in this matter is an important "sphere of usefulness."

It is to be regretted that there seems to be a growing necessity for every old man who writes or speaks to the rising generation of our profession, to say something upon the question of ethics.

Ethics is simply a system of morals, so plain that all men, in any profession whatever, should be able to read and understand while he runs—rules that it should not be necessary to teach, but should be born in the man, just as much as an aversion to lying, stealing, or other moral offense; but instead, and not to our credit, we find it necessary in every dental society, national, State or local, to publish with our by-laws a "Code of Ethics," and furthermore, that each and every member shall subscribe to the same by writing beneath them his signature. I say it is to be regretted that we are not sufficiently honest to allow our intercourse to be governed by the natural instincts of gentlemen. In this, the young dentist may extend his "sphere of usefulness" by his example.

In short, if the young dentist would extend his "sphere of usefulness" to its utmost he must cultivate an aversion to deception and empiricism, harmonize personal and professional interests, resolve to attain proficiency, meet boldly all responsibilities, (for difficulties boldly confronted are half overcome, while timidity but magnifies their proportions.)

In youth is the time to commence as you would continue. So I might continue in this same line, almost indefinitely, saying something about the care of our persons, the care of our operating rooms, instruments, etc., but I have already consumed more time than I ought, upon an occasion like this, when sociability and not long essays should be the order.

INFLAMMATION.*

BY L. B. TORRENCE, D. D. S., CHESTER, ILL.

GENTLEMEN:—The only apology that I have to offer for presenting this subject, if it be necessary to offer any at all, is the fact that there is no one subject that more deserves our most careful and earnest study than the subject of inflammation. It is a complication that rocks the surgeon in the cradle of sleepless nights, one that keeps friends in terrorizing anxiety, one that has caused the victims of neglect and accident, or the subject of surgical operations to suffer incomprehensible agonies. Then, indeed, is it not important that we dental surgeons, who are almost daily called upon to treat this dread disease in its milder forms, should give this subject some of our most thorough study in order that we might be able to treat it intelligently, and avoid its most grave and deplorable terminations?

Not only should we study for purpose of treatment, but also for the purpose of avoiding its uprising when favored by its absence.

The propriety of this theme as a subject for a paper occurred to me last fall while preparing a paper on antiseptics, because in its treatment we have nothing but a veritable war between sepsis and antisepsis.

Therefore, in the treatment of one we have nothing more than the practical application of the other. I want to state here that I am a disciple of the theory of bacteriology and that I accept it as one of the most plausible theories of modern medicine, that all morbid conditions of the body, or the organs of the body are due to the presence of morbific germs.

In discussing the etiology of inflammation I shall, therefore, give as the prime cause of all inflammatory processes the presence of these morbific germs.

Inflammation may be described as a succession of changes occurring in a living tissue as a consequence of an injury and the pressure of morbific microphytes. The injury may be mechanical, thermal or chemical; in fact any cause that would reduce the vitality of the tissue so as to be unable to resist the action of these morbific germs. The changes which occur in a living tissue while undergoing inflammatory reaction, are in part, analagous to those which occur in the production of normal tissue. They consist of first the Hunterian "Determination of blood," and the consequences which have been for the last quarter of a century associated with active congestion, namely, exudation of liquor sanguinis and emigration of white blood corpuscles through the attenuated walls of the capillaries.

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*Read before Southern Illinois Dental Society, Oct. 19, 1892.

But if this was all, if the process stopped here, nature would speedily repair the injury, healing by first intention.

And were this all the association of the microbe in the etiology of inflammation would not occur.

But the popular and accepted idea of inflammation including a termination characterized by the formation of pus. If the formation of pus be regarded as an essential part of the process, as the pathognomonic symptom of inflammation, then must we admit as the associated cause of the morbific process the presence of the pus forming germ; it being understood that there are several species of these germs which can more or less replace each other as pus producing agents. Up to the discovery of these mycrophytes it was accepted as correct pathology, that pus was formed by an injury and by that alone; let it be either mechanical, chemical or thermal, or a combination of two or more of them. But it has been proven in repeated observations by Burdon-Sanderson that tissue may be exposed to all the above conditions, and if the microphytes be excluded no pus formation results. But of course injury is a part of the process, it being necessary to reduce the vitality of the tissue before the germ can work.

The microscopical study of inflammation is therefore not materially changed. We have only to remember the catalytic influence of the microphytes while we observe under the microscope the same phenomena which occurred prior to their discovery. These germs are always present in the body and in the air, but the perfect vitality of the healthy membrane prevents their ravages.

The clinical symptoms or signs of inflammation are usually given as redness, heat, swelling, pain, and impaired function. But none of these may be termed as the pathognomonic sign or symptom because they are found physiologically. As for instance redness exhibited in modesty's blush, swelling in the areolar tissue beneath the eye following a night's sleep.

Neither are heat and pain infallible symptoms because the same nerve influence that causes the rush of blood to the part, through the part and from the part, would naturally cause heat and swelling, and when continued to the extent of pressure on nerve endings will cause pain. Even the infallibility of pus as a pathognomonic symptom is impeached by its presence in the normal fluids of the mouth and serous cavities. Having shown the different clinical phases of inflammation, we may clinically define inflammation to be a succession of phenomena observed in living tissues and organs analogous to those which may be produced in the same tissue and organs by the application of some irritating extraneous substance and the catalytic presence of microphytes. These changes can only be studied with the assistance of the microscope, and we will now proceed to study those changes as found to occur by our most eminent microscopists. In order to better facilitate this study we have prepared a number of charts * representing the different stages of inflammation in the different tissues in order that we may keep before you the subject in hand, and show the occurring changes in a short, concise, and I hope entertaining manner.

First, we will take up cartilage. Cartilage is extra-vascular and always protected from the atmosphere by other tissues. Therefore it is only necessary to expose cartilage in order to set up inflammation. The cells of articular cartilage are usually scattered in the ground substance in groups of two or four. As shown in chart one. This disposition of cartilage cells into groups of two and four is obviously due to the fact that these groups originated from single cells which first divided into two, and these two into four, and so on.

The mode of division is that of Karyokineses. The cell action accompanying the first stages of inflammation is identical with the cell action found in normal tissue formation; the last stages are an exaggeration of that action. This is shown by a comparison of charts two and three.

In chart two we find that the cell undergoes the process of karyokinesis, the cell elongates, the nucleus divides. The cell

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* Not reproduced.

divides and forms two distinct cells. Thus far the process is perfectly physiological, there being no deviation from the formation of normal cartilage. But here the analogy between the physiological and pathological ends. Instead of dividing into separate and distinct cells as before, they divide into a large number of embryonal cells and losing the power of depositing cartilage they become enveloped in a sack as shown on chart three.

This proliferation continues until the sack bursts under the tension and the cells are poured out as pus cells.

Thus you see that upon the application of irritation we have at first nothing but normal cell action, and I doubt not that if it were possible to supply nutrition in proportion to the cell action, that normal cell action would continue. But the nutrition being less than proportionately demanded by the cell to fulfill their function, the result is that they degenerate into pus cells and are suppurated off.

Now remember that in all inflammatory action the cells return to the embryonal condition, and by this fact we are able to account for most new formations. As for instance when a cell returns to an embryonal mesoderm, it does not follow that that cell will necessarily return to muscular tissue from which it may have come, but it is just as likely to become bone cartilage or any other tissue of mesodermic origin. In the formation of pus in cartilage the pus cell is the result of the degeneration of this embryonal cell.

Having shown you the changes which occur in the nonvascular tissues, we will now proceed to take up the vascular tissues.

In the nonvascular tissues we have the embryonal cells as the source of the pus cell, but in the vascular tissues we have the additional source of the leucocytes which pass through the attenuated walls of the capillaries into the surrounding tissues and are there degenerated into pus corpuscles or cells.

In the vascular tissues the first effect of the application of an irritant is a rush of blood to the part, through the part, and from the part, a condition known as hyperæmia or inflammatory congestion. To accommodate this we have first a dilation of the arteries which gradually extends to the veins and capillaries, accompanied by an accelleration of the flow of blood. Now Cohnheim says that this dilation with accellerated flow is purely accidental—as a result of injury. But where the dilation comes on with diminished velocity it is constant and permanent so long as the cause acts, and may be regarded as the essential vascular change of inflammations. As the stream of blood becomes retarded in the dilated vein (using the web of a frog's foot for observation) we find white corpuscles increasing in number in the plasmatic layer in the smaller veins, rolling slowly along, sticking here and there until the veins are lined by layers of spheroidal like cells. This forms an obstruction to circulation, and the capillaries become packed full of red corpuscles with some of the white. At first the contents of the capillaries oscillate to and fro with the systole and diastole of each pulsation of the heart. This is succeeded by stasis in which no movement occurs, although the contents of the capillaries may remain fluid for as long as three days (says Paget). This is followed by thrombosis or coagulation, but not until the walls of the capillaries are dead. Soon after the veins become lined with leucocytes, we will observe these leucocytes sinking gradually into the walls of the vessels and finally pass into the adjacent tissues.

Various stages of their passage may be observed. At first small button-shaped elevations appear on the outer wall of the vessel as in chart four. These generally increase in size until they assume the form of pear-shaped bodies, adherent to the vessel by their small ends. Chart four. Ultimately the small pedicle gives way and the passage is complete, the corpuscles remaining free outside the vessel. Chart four. One outside it degenerates into pus, and we have following, suppuration.

Having followed the course of inflammation to the degeneration of tissues we will now study the terminations of the same. The most frequent as well as the most favorable termination of inflammation is resolution. It consists in the cessation of the process and the restoration of the part to health. For this to occur it is necessary, first, that the exciting cause be removed, next that the walls be restored to their normal condition in order that abnormal transudation may be arrested, and thirdly that all exudation and all dead tissue be removed and the damaged tissue be regenerated.

The second termination is that of necrosis. This may be produced in three ways. 1st. By severe injury continuously acting upon a part producing inflammatory disturbances of the circulation ending in thrombosis. The tissue being dependent upon the vessel for nutrition, of course dies as a result; 2d.

By an irritant conveyed to the part by the vessels, affecting the vessels primarily and the tissues secondarily; 3d. By pressure of inflammatory exudation, either fluid or solid, rapidly or slowly strangulating the vessels of supply. 3d. The third termination is that of new growth, sometimes called productive inflammation. The third termination is sometimes one of the hardest to control. Included in the last we have tumors which consist of a mass of new formation which tend to persist and grow. They originate from preëxisting cells of normal tissue and have a circulation peculiar to themselves. They are termed malignant according to the amount of embryonal tissue found in them, and benign according to the amount of normal tissue found in them. So in the third class of terminations we have included the malignant sarcoma as well as the persistent epithelialoma. Such terminations as these should impress us with the depth of importance attached to the study of inflammation. And now we come to the practical part of our discourse. That is the treatment.

In order to intelligently and scientifically treat inflammation it is absolutely necessary that we know: first, that we have correctly diagnosed it as such; secondly, the stage of the disease; and thirdly, the diathesis of the patient; for I do believe that there is certainly such a thing as inflammatory diathesis. The diagnosis has been covered in previous remarks so it is unnecessary to repeat. Upon the stage and diathesis depends the success of our treatment. First we will take the incipient stages in a person of favorable diathesis. In this class of cases it is only necessary to remove the cause to expediate a favorable and rapid recovery; while on the other hand in a subject of inflammatory diathesis the pathological action would continue until it reached the grave stages. In the treatment of inflammation we regard it as the most plausible omen of success that we adopt as our course of treatment one which clinical experience has substantiated, one that the scientific research of microscopy corroborates, and one which the stage of the disease would warrant us to use with the expectation of success. To do this we must know the stages of the disease.

Even in this enlightened age you can find practitioners who know, or at least use no other treatment, for inflammation except the application of cold. And on the other extreme you find another class of practitioners who advocate only the application of hot fomentations. Each are a charitable God-send to humanity in its proper sphere and each capable of doing a most serious harm when injudiciously and ignorantly used. The application of cold is of great benefit during the earliest stages of inflammation, at a time when exudation is only beginning and the capillary vessels are dilated and only partially obstructed.

Cold when applied under these circumstances becomes a valuable remedial agent: 1, by producing contraction of the small blood vessels; 2, by producing at least an inhibitory effect upon the microörganisms in the inflamed tissues. The contraction of blood vessels which takes place under the application of cold has a tendency to clear the capillaries of their contents and to prevent further mural implantation. Microörganisms can only multiply at a certain temperature, and if this can be kept at a point low to prevent their increase in the tissue by the application of cold then this agent fulfills one of the causal indications in the treatment of the inflammation. If however stasis has already taken place in the capillaries first affected then the application of cold will prove harmful, as it will tend to prevent formation of an adequate collateral circulation. The sensations of the patient can be safely taken as a guide as to the length of time that the application should be continued. As we find value in the application of cold so also in the application of heat do we find a valuable remedy. Heat in certain stages of inflammation, when the affection has passed beyond the stage where the cold exercises a favorable influence or where cold applications increase the suffering, warm antiseptic fomentations should be applied. The ordinary filthy poultices of flaxseed, slippery-elm, or bread and milk are nothing but veritable hotbeds for bacteria and as such they should be discarded. Hot fomentations act as derivatives and favor the formations of collateral circulation; at the same time they relieve pain, by relaxation of the tissue, thereby relieving pressure upon the nerve endings. A good application is a number of layers of flannel cloths wrung out of some warm antiseptic solution: (one of acetate of aluminum of one per cent strength is a safe one under all circumstances.)

Whatever means tend to restore the equilibrium in the circulation of the part is to our mind the proper and scientific treatment of inflammation. I regard heat and cold intelligently administered as the most important agents in this dread disease. They are those furnished us by the all wise Creator, who in his far-seeing wisdom, has provided for our wants in the past, furnishes us with means to alleviate the pains of the present and will provide for our comfort in the future.

Another treatment of inflammation, indulged in by some of the most able teachers and practitioners for centuries, is that known as the antiphlogistic treatment. Included under this head we have bloodletting, cupping, leeching, and the internal use of cathartics. It was urged that as inflammation was attended by an increase of heat, swelling and redness, such remedies should be employed as will reduce arterial tension. But as an unimpaired power behind (*vis a tergo*) is one of the best means to prevent stasis within the inflamed capillaries, practical experience has shown that all remedies and agents which diminish the intra-arterial tension only diminishes the prospects for a favorable termination of inflammation. Let me dilate upon this. It was urged that the depletion of the system would relieve the arterial pressure and also the liability of the inflamed area to congestion and stasis. The first part of the premise is correct, when we remove a part of the fluid from a closed vessel, such as the arterial venous systems, together with their connecting links the capillaries form, there is no doubt that the tension is reduced. But in the reduction of that tension we have reduced the pressure exerted by the heart through the arteries, to drive the blood through the congesting capillaries. Cohnheim showed this experimentally in the exposed mesentary of a frog. He avoided threatened stasis in inflammation by injecting into one of the veins one centimeter of a six per cent solution of sodic chloride. But if under similar circumstances he abstracted a considerable quantity of blood, the congestion resulted in complete stasis in a short time.

Venesection is another old time remedy, and while venesection in the treatment of inflammation has been discarded, the direct abstraction of blood from the inflamed part has proved a useful therapeutic source. In order to be of benefit the scarification must be made through the inflamed part, so as to unload directly the dilated and engorged capillary vessels, and on this account this method of treatment is only applicable when the inflammation is superficial and affects accessible parts.

Scarification is followed by great relief when the bleeding is encouraged by applying warm water. Now a word to those who treat a person suffering with acute inflammation by sailing in on a course of antipyretics. If the rise in temperature which attends acute inflammatory affections is due to the introduction into the circulation of phylogistic substances which are produced by the action of the aforedescribed microörganisms in the inflamed tissues, it is not difficult to conceive that its artificial reduction by the internal use of chemical substance is not followed by any permanent benefit. The rational treatment of this fever as in any other disease is the removal of the cause. In our treatment of pericementitis it is often objectionable to remove the cause, which is an offending tooth, and we are compelled to adopt other measures, but we simply avoid the heroic means of extraction, by adopting elimination of the poison through absorption into the circulation and elimination through the outlets of body intended by nature as sewer for the effete matter of the same.

While it is clinically true that antifebrin, antipyrine, quinine, and other antipyretic drugs when administered in large doses, will usually reduce the temperature several degrees for a few hours, it is also clinically true that this reduction is always accomplished at the expense of the forces which are laboring to clear the obstructed paths; and on this account their use has resulted in vastly more harm than good to the patient. Quinine, the least objectionable of the drugs which we have mentioned, when administered in the beginning of an inflammation, by its known tonic effect on the small blood vessels when administered in large doses, has a favorable effect in preventing rapid dilation of and stasis within the capillary vessels. If used at all it should be given in a decided dose, fifteen grains in solution, no time to wait for capsules to dissolve, and given immediately or soon after the development of the first symptoms.

Sponging the surface of the body with warm water or the use of warm baths are the most rational antipyretics, as these simple measures do not weaken the heart's action, while they have a decided effect on temperature, and at the same time add to the comfort of the patient and favor elimination of microbes through that great excretory organ the skin. The kidneys are also known to eliminate microörganisms that reach them through the general circulation. Their function should be carefully inquired into, and if the secretion of the urine be scanty, diuretics like liquor ammonii acetatis or acetate of potash should be given. In the treatment of symptoms of sepsis in inflammation alcoholic stimulants should be freely administered to meet in time the dangers incident to heart failure.

In chronic inflammatory affections systematic massage is an exceedingly important and valuable therapeutic resource. It stimulates the surrounding vessels to increased action and exerts a potent influence in restoring the normal circulation in the affected capillary vessels and promotes absorption. Counterirritation is another treatment which must not escape our attention. This is a time-honored treatment, and no doubt will be with us for some time to come. It is a relic of antiquity, and while its near kinsman and associate, venesection, has long since been relegated to a place in the pages of past history; counterirritation reigns superbly supreme in a great many dental and medical offices throughout the world as king in the treatment of inflammation throughout all of its stages. It has at least one good quality. It will satisfy the patient and prevent him from falling into the hands of charlatans until the time has arrived to resort to more effective and radical measures. But do not understand me to mean that counter irritation has no therapeutic value. No remedy could stand the test of long years of observation and criticism without having at least some valuable curative attribute.

The theory that we usually find advanced in regard to the action of a counterirritant is ridiculous in the extreme. The theory usually advanced is that by the application of an irritant at some point distant from the affected area we will cause a rush to the artificially irritated part, and a consequent lowering of the blood pressure of the general circulation and a consequent release of pressure in the affected part. This effect is more due to the influence of nervous connection than anything else. This is very easily proven by the immersion of one hand in cold water, and the consequent fall of tempearture in the other. In order that we may successfully use counterirritation we must have a comparatively competent understanding of the anatomy of the part upon which we intend to work. There must be a continuity of the vascular connections in order that the fluxion sequent to counterirritation shall relieve the blood pressure of an affected part. In other words for counterirritation to work successfully, it should be applied so as to rob the inflamed area of the surplus of blood flowing to the part. To do this we should make the application on the track of the supplying artery, at a point nearer the heart than the inflamed area.

But we dentists of the present age do not treat inflammation entirely by local applications. As an adjunct to our local treatment we find many systemic remedies of much value. For instance, in veratrum viride, gelsemium, arnica, and especially digitalis do we find valuable as arterial sedatives to diminish blood supply to inflamed area and cease to be beneficial when exudations begin. Veratrum viride acts by lessening the force with which the blood is propelled and the number of cardiac contractions. Active hæmorrhage in the plethoric is sometimes stopped by a full medicinal dose of the drug. (Tinct. M. j. to M. v). Gelsemium and arnica do the same thing. Digitalis acts by contracting the arterioles. When given in lethal doses short of a toxic dose the effect is first a rise in temperature, succeeded by dimunition no doubt to paresis which results from over stimulation. Its therapeutic action is to slow the action of the heart and contract the arterioles.

All the above remedies are useful before exudation begin, but their function ceases when that begins. In the exudation stage we find such remedies as the alkalies, especially the potash salts and ammonia very valuable. They lessen heat and promote the excretion of the products of inflammation. The potassium chlorate is valuable in the treatment of acute tonsilitis, aphthous ulceration of the mouth, stomatitis materna and mercurial stomatitis. But this chlorate has become such a universal domestic remedy that its valuable qualities are much abused by injudicious use. Therefore, it should be recommended with caution, and in a great number of cases its use should be discouraged.

Gentlemen, I do not feel justified in detaining you longer. This is but a brief outline of this subject. Our field of study is boundless. In wandering over untrodden ground we have found pleasurable entertainment in a variegated study. The more that I study this subject the more important and interesting it becomes. In the quiet hours of reflection, I review a panorama made up of unsightly and hideous deformities caused by neglect, or what is worse, caused by the imposition of an unscrupulous charlatan upon an unsuspecting innocent public. What does it mean? Read the handwriting on the wall. There carved in bold relief stands the solemn admonition, observe, study, apply. And no professional man is worthy of the calling he has adopted unless he does faithfully, diligently and continuously, observe, study and apply.

DENTAL JURISPRUDENCE WITH A FEW SUGGESTIONS FOR PRACTITIONERS OF DENTISTRY.*

BY G. W. SICHEL, M. D., D. D. S., SAN FRANCISCO, CAL.

All dentists engaged in the active practice of their profession in large cities are apt to encounter many difficulties from which those practicing in smaller communities are generally exempt. A dentist in a small community can form more or less acquaintance with those whom he is called upon to treat; at all events, if he is ordinarily alert, he soon is posted as to the character and circumstances of those who may become his patients, and can govern the conduct of his business accordingly; with large cities, such as San Francisco, our colleagues necessarily are at a great disadvantage in many respects. They are not only justified in exercising rigid and systematic discipline over their professional performance, but should be urged to do so, not only as a matter of justice and protection to themselves, but also as a matter of fair precaution to establish the facts of their treatment for the benefit of all concerned.

Dentists, like other people, who must collect pay in this sordid world, soon learn to appreciate the perverseness of human kind as they encounter it in their offices and operating rooms. Their patients in many cases come to them for the first time as total strangers. The patient before treatment is suffering or anxious for improvement; he frequently declares that the mere matter of a few dollars, more or less, in his bill, will cut no figure. He needs, or thinks he needs, dental service ; he wants it at once ; he wants good service, good treatment, good results.

The treatment over, our patient scans the result with a critical, though inexpert eye. The appearance of things may be satisfactory to him; he appreciates that the agony of the operating chair is over; his ordeal there is a thing of the past. At once his estimate of the dentist's services begin to lower. Called on for pay, he depreciates the services, suggests that the charges are excessive, and often declines to pay those made, be they ever so reasonable. No element of gratitude figures in the controversy; it is a mere commercial transaction, one handing so much money as compensation; the other resisting the same. The solution of such a controversy must necessarily depend upon the character and quality of the testimony which can be and is produced in support of the claim. For the credit of the profession alone, if for no other purpose, a dentist should make it his invariable rule of practice to preserve for a reasonable length of time at least, as much evidence as he practically can of the details, progress scheme and development of his treatment and work. This rule should be particularly enforced in all cases of mechanical work and operation. During the course of treatment a patient is apt to forget just how his mouth looked when the operator began treatment, consequently he has a very inadequate understanding of the value and extent of the benefits achieved. If the operator can do no more than explain what was done by him, the patient will generally regard the explanation with scant appreciation and distrust.

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*Read before the California State Dental Association July 20, 1892.

It seems to be the rule of laymen to regard and estimate professional work only according to its visible, tangible products. It is useless to rail against the injustice of such a rule. We cannot deny its existence, since we encounter laymen patients every day who apply it to our work. The people with whom we deal regard the rule as valid and insist on inforcing it. As a matter of fair precaution, therefore, we should do what we can to preserve a record of our visible, tangible results. This is in many cases a simple task easily accomplished. All mechanical operators can and should for instance, preserve the impressions taken by them at the various stages of regulating teeth. Should controversies then arise, these very casts themselves being intact and presentable at all times will show the points and difficulties, the merits and the value of the operations. A patient would impugn and depreciate the treatment to no good purpose if he could be confronted with the proofs of what that treatment involved and had accomplished.

Another point to be considered in this connection is the value of good dental records and evidence as a means of identification. Without specifying cases, it will suffice to here advert generally to the numerous instances reported during the past few years where the identity of human remains was established only through the evidence of particular dental work, of which sufficient office evidence and record had been kept by systematic and conscientious dentists.

In these days when deaths by accident, involving much disfigurement and mutilation of the body are matters of almost daily occurrence, the permanent evidence of careful dental work is of the greatest importance. Life insurance companies and courts, in cases of the kind, must, and do require conclusive proofs of identity; the evidence presented by particular dental work, substantiated by reliable and sufficient dental office evidence and record, in many instances would amount to demonstration, and be of extraordinary value and service. No dentist should fail to appreciate the prudence and wisdom of maintaining office evidence and a sufficient record of his work, and to do what he can to make and preserve such evidence and record for himself.

Another danger which besets practitioners in large cities with added peril, is that incidental to the administration of anæsthetics, particularly to strangers, and most particularly to women. It is needless to refer to the many cases reported in the books, which show circumstantially how unscrupulous persons have designedly beset brothers of our profession, and unjustly worked their utter ruin. Cases like those reported will recur. A careful practitioner can insure himself against unjust accusations, and perhaps criminal prosecution, only by the exercise of extraordinary vigilance and precaution. No dentist should ever assume the risk of administering anæsthetics to any person, whether friend or stranger, man or woman, except only in the presence, and within the continued observation of reliable, disinterested witnesses.

A few other points involving the consideration of law matters frequently arising within the experience of practitioners engaged in the walks of practice cannot but be of interest to us all.

Thus it is comforting to know that a dentist, who has presented his bill for a given amount, is not bound by the sum therein charged unless it is promptly paid. A bill when rendered is a mere offer to accept the compensation therein fixed for the services therein charged for.

If the offer is not promptly accepted by payment of the bill, the charger is at liberty to withdraw or ignore the former bill, and to make such other charges as are warrantable. In the absence of any special contract, a dentist is entitled to recover the reasonable value of his services and work, and the value of such services and work is generally determined by the testimony of other practitioners familiar with the rates of charges, and compensation usually paid in the community for services of the same or a like character. Such experts may testify what in their opinion the work or services in controversy are reasonably worth. While they testify in such matters practically as experts, the testimony required of them upon the subject submitted for determination is not regarded as having a peculiar or exceptional value such as would entitle them to charge for their services, attendance, or testimony at court, any more than the usual per diem paid to ordinary witnesses.

In conclusion, it may be of interest to members of our profession in attendance, to know that dentists, as such, under the laws of California, are not exempt from jury services. The code of Civil Procedure, Section 200, provides in terms, "that a physician engaged in the business of dispensing medicines should be exempt from such services," so that members of our profession who are also engaged in practice as medical doctors or as surgeons, and properly licensed as such, may validly claim exemption from such jury service. Those who are doctors of dental surgery only, however, must respect the call of our courts and the sheriff's mandate, and attend and sit as jurors, as just men and true, duly sworn to hear and determine the evidence, and to render a true verdict thereon.

Many other points familiar to the experienced practitioner, and new to others, have occurred to me while writing these suggestions, but as time is pressing, and many here might regard the matter as an old story, and wearisome as such, I will not state them now. It has been my desire to suggest and state points rather than to discuss them. In a gathering such as this, no need exists for much elaboration of good subjects; we are all gaining experience, learning business lessons simple and severe with each day's labor, and should strive to give each other the benefit of such lessons as we learn.

I thank you, gentlemen, for your attention and interest.

OFFICE ETHICS.*

By THOS. L. HILL, D. D., S. SAN FRANCISCO, CAL.

"O wad some power the giftie gie us
To see oursels as others see us."

The above quotation comes to me, and I endeavor to put on paper a few thoughts concerning the ethics of our office life, and what we can do to make ourselves more agreeable to our patients, and those around us.

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*Read before the California State Dental Association, July, 20th, 1892.

To begin with, I suppose it is hardly necessary to speak of cleanliness, though when it is not a rare sight to see a soft bluish streak lingering under the nails of some men we have met, and also mayhap detect a slight smearing of ruddy fluid on a forcep, or a spittoon that is much the worse for the want of water for several days, furniture that one may write his name upon in dust lined letters, ashes from an overfull grate making vain efforts to crowd into the light and air, the windows so begrimed with dirt as to almost exclude the light that makes an attempt to search out the obscure and secluded spots in our offices, it may be as well for us to remember that our patients have eyes and see these things more plainly than we do ourselves.

Now once a patient is in our office, and we see a shadow of a fee looming up behind him, shall we rush up to him in a hearty, frank, effusive, warm greeting, shake him by the hand, ask after his family, his friends, or receive him in a cold matter-of-fact " sit down 'til I can find time to attend to you " manner that brings a very shudder to the aching tooth he is trying so hard to get rid of? Between these two we must find a happy medium that will be acceptable.

Then, again when we have a lady or gentleman in our chair, is it considered good form to whistle the latest popular air, or hum a few bars from some somber opera in a voice that the owner might believe rivals Patti, but to a rubber bound patient sounds like the last, last despairing wail of the office cat; and will it be accepted as the right thing to tell our patients, of our, to ourselves, great deeds, and how to do certain things so well, with an inference that no one does them quite so well, and of what we did for Mrs. Jones or Mrs. Smith, and what her friends said of her improved appearance, which we may think very interesting and entertaining, though not by any means agreed to by our unfortunate listener.

The tobacco habit is another luxury that could well be dispensed with, and the delusive cigar, and the succulent cocktail go hand in hand to load our breath with the odors of a second-hand distillery, for no matter how we may try to disperse our favorite Maduro, it will make its presence felt long after our pleasure is a thing of the past, and stimulant known as the great American mixture will not down with the first drinking, but like Banquo's Ghost rises to the occasion, adding more trouble to the subject of our tender ministrations.

And again soup is a good thing in its way; very nourishing, not apt to cause caries of the teeth, easy digestion, and may be considered an all around good thing for the overworked dentist, but when the vest front is used as a receptacle, and small maps are traced on the otherwise immaculate shirt front, it can hardly be considered the right thing in the right place, and our patients will say that we are indeed in the soup. Gentlemen be sure and wear out one or two whisk brooms during the year. You will be better for it take my word.

It is also well to remember that when we are inclined to growl at the total depravity of inanimate things, or at ourselves, at anything, it is not fair to make an offending office boy the subject of our wrath, simply because he can't talk back, and remember that our patients are hearing us every time that we smoothly ask them if anything hurts, and in the same breath howl at John or James, and snarl out a "take care can't you, don't be so clumsy."

Little things, gentlemen, make our lives pleasant and smooth, or rough and disagreeable, and let us not forget the small hirelings under us, who perhaps think more than we give them credit for.

In conversation with our patients let us not show the hasty spark, when for the twentieth time we are asked, "if this or that will hurt?" or "are you going to use one of those things?" or are blandly told that Dr. Perfect "does not hurt at all when he fills teeth, and that Miss ——— told you so" goes to him all the time.

In short, gentlemen, let us be mild and obliging, let us be agreeable, always good tempered, always kind, always neat, and above all, always clean, and when we are called to that restful paradise that awaits every member of this society, we will reach the topmost seat at a bound, for our wings will have started here.

REPORT OF THE COMMITTEE ON DENTAL LITERATURE AND EDUCATION.*

BY W. Z. KING, CHAIRMAN.

As chairman of this committee I wish to report that the committee will furnish three papers on this subject, which will be read at the pleasure of the President of this association.

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*Read July 20, 1892, before the California State Dental Association.

Other members of the committee were invited to coöperate in this report, but failed to respond to the invitation of the Chairman.

We are so far removed from the great publishing centers that it is very difficult to keep fully posted on the literature of the profession, but I believe the following list comprises the most important of the works, that have been published since our last meeting.

I herewith give the title, name of the author and where published: Dental Medicine, F. J. S. Gorgas, Philadelphia; Pocket Anatomist, C. H. Leonard, Detroit; Questions and Answers, Dental Pathology and Therapeutics, Gustavus North, Chicago; Denmark, its Dentistry, V. Haderup, London; Manual of Hard Soldering, Harry Rowell, New York; Age of Domestic Animals, Treating of Their Dentition, R. S. Hudekoper, Philadelphia; the Microscope and its Revelations, W. B. Carpenter, Philadelphia; Dental Calendar, or Dental Kalendar, Jahrgang; Notes on Dental Practice, H. C. Quinby, London; Catching's Compendium, B. H. Catching, Atlanta; Constitutional Irregularities of the Teeth, E. S. Talbot, Philadelphia; Dental Jurisprudence, W. F. Rehfuss, Philadelphia; Perfect Vulcanite, or Solid Rubber and Whole Sections, W. G. Baker, New York; Transactions California State Dental Association 1890 and 1891.

I have not at hand a list of the new journals that have appeared during the year; but a marked improvement can be seen in the make-up and matter that is to be found in the old favorites, and it is safe to say that none of the older professions excel us in our current literature.

The coming to us each month of so many journals takes the time that most of us can spare for reading, which accounts largely for the small demand for dental books, except as text-books.

And what may be said in behalf of dental education: In September, 1891, there were twenty-eight (28) recognized dental colleges, and new ones are being organized on every hand. The past year there were twelve hundred (1,200) young men graduated from the leading colleges of the United States. Under the iron-clad rule of a three (3) years' course, the previous education and perhaps dental training of these young men does not seem to have helped them any.

I think the idea is gaining ground, that students should be passed on their merit. If a bright, active, ingenious young man has been in an office for two or more years, he certainly has a great advantage over the boy who goes from the common school directly to the dental college.

I am informed by a prominent educator in our specialty, that in some of the eastern schools, the applicant is required to be a high school graduate, and proficient in Latin and Greek, so the standard is being raised.

As to education after graduation, I consider the Dental Society one of the best factors we have. Here we may meet and rub the cobwebs from each other's eyes, and you are sure to see and hear something you have never heard or seen before. New theories are advanced, new experiences and methods related, and in more than a hundred ways we benefit each other.

In closing this report I would like to quote from the pen of Dr. E. C. Kirk, the following sentence:

"And having accepted the belief that the Dental Society is inherently an organization for the increase and diffusion of knowledge pertaining to dentistry, it becomes the duty of its members to persistently labor for its highest efficiency in these directions, to the end that its educational results may inure to the benefit of the greatest number."

COMMITTEE ON DENTAL EDUCATION AND LITERATURE.

Dentistry is a progressive science, and it behooves its followers not only to keep pace with new discoveries, but to clean away the debris of ages, and make the first principles so clean, so concise and so interesting, that from the beginning it is a labor of love.

Just how to acquire these fundamental truths, we would suggest the preparatory training of the student in some dental office, under the tutelage of a conscientious instructor, who can impart his own knowledge in a manner that the idea or principle is fixed in the mind of the student in a way that no mere reading or lecture could do. A knowledge of human nature is indispensable. In the office the student receives impressions of its variable weakness, and how to express sympathy, at the same time exercise professional firmness that secures the confidence and respect of the patient; here the quick eye and ready judgment become skilled in the requirements of the subject either in therapeutics or hygiene

Official courtesy should be maintained toward every visitor, whether casual or professional.

A thorough course in some reputable dental college prepares the student for his life work and lays the foundation of successful dentistry. This training in connection with systematic reading and close thinking insures a just reward.

The history of the profession is full of testimony to prove how much depends upon earnest industry. The old adage "There is no excellence without labor" is fully exemplified in this, no matter how bright the genius, without constant study and careful thought he degenerates into a useless clod; a libel upon the profession. To attain success we must first do our work with an honesty of purpose that will enlist the respect of the patient and a just compensation for ourselves, always keeping before us the thought that every piece of perfect work redounds to the glory of the profession.

In this age of iron, steam and the electric telegraph we are able to communicate with the best writers and thinkers all over the world, and the dentist who fails in this is derelict in his duty. Therefore, let us urge upon all students and teachers to keep apace with modern thought, giving honest work for its just equivalent, studying ever to honor the profession which has honored us.

IRVIN W. HAYS, Jr.

GRASS VALLEY, CAL.

PROCEEDINGS OF SOCIETIES.

CHICACO DENTAL SOCIETY.

Regular meeting, January 3, 1893, Dr. J. W. Wassall, President in the Chair.

DR. H. H. SCHUHMANN read a paper on "The Early Differential Diagnosis of Tumors."

In the absence of Dr. John S. Marshall, who was appointed to open the discussion, the President called upon Dr. T. W. Brophy to do so. Dr. Brophy said: "The paper which has been read this evening is of interest to all of us, and I simply desire to refer to one or two points which were omitted and which seem to me ought to be discussed. For instance, the essayist failed to call our attention to two important cysts, namely, mucous cysts and salivary cysts, the latter of which is sometimes called ranula, so called from its resemblance to the belly of a frog. This cyst occurs beneath the mucous membrane in the region of the base of the floor of the mouth, in consequence of irritation brought on frequently by an accumulation of salivary calculus, which naturally closes the ducts leading from the salivary glands. Then we have mucous cysts which frequently occur in the mouth owing to the stoppage of the orifices of the mucous glands. These sometimes reach much larger proportions than one would suppose, reaching the size in marked cases of a walnut. They are simple to treat and are non-maligant in character.

There is one point in the paper that I desire to criticise, and that is the use of the finger nails in testing the condition of growths upon the mucous membrane to ascertain whether or not there is free or little hæmorrhage, the object of which is to determine if the tumor be malignant or benign. I would discourage the free use of the nails for such a purpose. The finger nails thus used may inoculate the wound made with septic mater which may lead to serious consequences.

The object of the paper is a most excellent one, enabling us to draw a line between malignant and benign growths. The question naturally arises, what is a tumor? Is it a puffing up of the part, as it literally means when translated from the Latin, an enlargement? If so, a tumor might be a puffing resulting from an abscess. That would not be a tumor technically, yet the name implies it would be. In covering this ground in an admirable way, I think the definition formulated by the late Wm. H. Van Buren, of New York City, presents the whole matter to us in a few words and enables us to distinguish between a puffing up of the tissues from any cause, accumulation of fluids of any kind, or an hypertrophy which may be transient, and that which really is a tumor. Professor Van Buren defines a tumor thus: "A tumor is a local, limited enlargement taking place in any part of the body and consisting in substance of an outgrowth of new tissue which has no physiological purpose." If we are enabled by any means to determine where this condition is, we can determine whether we have a tumor or not.

With reference to the frequency of tumors in the different sexes, it is a well-known fact that during the period of gestation these growths develop most rapidly, and I would caution all who are inclined to make operations for the removal of epuloid growths or other tumors to avoid such procedures during pregnancy, because experience has demonstrated that the growths which occur at that time are most frequently benign and rapidly disappear with the completion of gestation. Carcinoma is really cancer, and the word simply means something cord-like or spider-like. In carcinoma the cells take on the peculiar growth which reach out like devil-fish and keep on developing until multiplied to an enormous extent. In regard to the fatal termination of cancer, I do not agree with the author of the paper. A person dies from cancer not from the development of tissue of the part that reaches out in different directions, but from pyæmia, breaking down of the tissues and poisoning of the system by absorption of pus. It is rare that a cancer exerts pressure upon the part and causes death, or by its development causes death, but it is from the poisoning of the system and breaking down of the tissues. I would say in this connection, that in my college days I learned more about diseases of the mucous membranes from the late Prof. William H. Byford than any other man. His remarks were clearly impressed upon our minds and demonstrated to us in the clinics, and such lessons can never be effaced from memory.

Dr. SCHUHMANN (closing the discussion). I thank Dr. Brophy for his kind remarks on my paper, but am sorry that we could not get more of a discussion of the subject. I did not mention anything, or at least very little, about the pathology of cysts in my paper, for the reason which I mentioned before reading the essay, that is, that I was writing on *differential diagnosis* and not on pathology. I believe Dr. Brophy must have misunderstood me in regard to the cause of death through carcinoma and certainly had not intended to say that death was due to mechanical interference —in fact, I used the very words "until the patient finally succumbs to its poisoning and exhausing influences." I also did not intend to have any one believe that I thought for a moment to use such means as picking a tumor with the fingernail as differential diagnosis between a fatal and unfatal tumor; but said that in *that one particular case* by causing the tumor to bleed either by handling, by pricking with a sharp instrument, or by the slightest touch with the finger nail, we would be materially aided in our diagnosis or prognosis. As no one has seemed to take exception to anything stated in the paper, I have nothing further to say on the subject. I thank you for your very kind attention.

Dr. C. P. PRUYN read a paper entitled "Pain, Its Pathology and Remedy."

Dr. A. W. HARLAN (opening the discussion), Mr. President: I was unaware that I was to open this discussion until I received a postal card a few days ago. I may say, that I was the gentleman who chose the subject for the essayist. The subject, I think, you will agree with me has been very well handled indeed. The author's definition of pain is in some respects very good. If I were to define pain without looking at a dictionary, I should say that it was both physical and mental, and that physical pain was the opposite of comfort, and that mental pain was something absolutely indescribable. If you will remember, those of you who have read Horace, there was a very aged gentleman, who, after a long life of self-abnegation, physical suffering and mental distress, was suddenly housed and taken care of by one of those who had subjected him to all the mental and physical ills that he had passed through, and in the process of his restoration to physical health, it was found that this person had omitted one thing necessary to his comfort and quietude. After the learned doctors had treated him, the most learned one came to this conclusion, that he would eventually die, and perhaps very soon, because his remedies failed to relieve the distress. He said the patient wants something that his eye has been accustomed to see. What that is perhaps you know. He says, "I cannot administer medicine for the mind, but it appears to me that this is what this sufferer wants." It was found on investigation that that was true, and so the pain was relieved by rest and the familiar object that the eye missed.

Looking at pain and its pathology from the standpoint of the dentist, did you ever think that very frequently you could stop the pain of facial neuralgia, odontalgia, or pain of the peridental membrane by feeding a patient? Nearly all of the physical pains in this world are brought about on account of a lack of nutrition. If you have perfect nutrition your patient does not have pain. One of the greatest physicians that ever lived, being called to prescribe for the member of a family, went into the house and after looking around the unfurnished room, and the general physical condition of the person occupying it, said, as he took from his pocket a little package, "You will find six pills in this package, and they are to be taken when wanted. Good day." The patient opened the package and found six guineas. In that way the starvation which was the cause of the pain was relieved. I should say when your patient is suffering from pain very many times the cause will be found in lack of or over-nutrition, and that the remedy will be in one case starvation and rest; in the other feeding and rest. For the pain of the mind there is perhaps no remedy.

Those of you who have delved into the realms of literature know that some of the finest works of the imagination have been evolved under the greatest distress imaginable, and that the relief of the sufferer seems to come from what he was doing for posterity, although perhaps that was not in the mind of the person when evolving the beautiful thoughts that never die. To come directly to the subject of pain as it affects the practice of dentistry, I do not know that I can speak of anything that is specific. You may take all the narcotics, soporifics, and anodynes that you please, but unless you have rest they will do no good. They are only temporary. Nature herself must come to relieve the sufferer.

Dr. GARRETT NEWKIRK: Dr. Harlan said sometimes the remedy for the relief of pain would be starvation and rest, and sometimes nutrition and rest. I think I would amend that slightly by saying starvation and exercise, rather than rest, because it often happens that the condition which produces pain is relieved by active general exercise, distributing nervous force and the blood to all parts of the body. Dr. Pruyn spoke of the diagnosis of pain; that oftentimes pain exists without our knowing how to trace it, because of our want of knowledge of nervous connections. We must remember the nervous system is a unit. All parts of the nervous system are connected with all other parts, and irritation anywhere may produce reflex pain in any part of the body. We might have a neuralgia of the face, or some part of the upper extremities, from irritation of the lower extremities, or from the uterus, rectum, or ovaries. It is necessary that we should bear all these things in mind, and if we as dentists are unable to diagnose the cause of pain which presents itself, it is well to call to our aid a physician to see whether he can find a solution of the difficulty. In other instances the physician can also with advantage consult us.

Dr. J. N. CROUSE: I was very much pleased with the essayist's method of handling the subject of pain, but it seems to me the gentleman who opened the discussion got up into the sky a little too high, and failed to hit the subject right. Why? Because in giving his remedy for the relief of pain, he says rest will do it. Rest will not do it. Reflex pain that comes from the deposit of ossific matter upon the tooth pulp will not be relieved by rest. If nature and rest are the remedies there would be no need for physicians, and we as dentists have got to grapple with those things which nature and rest will not relieve. Rest, nourishment, and dissipation will not relieve ossific matter that is causing pain around the jaw, and which is one of the great causes we have to contend with. We may have an exostosis from some mucous membrane, causing ossific matter to deposit itself around the sockets of the teeth, thus producing excruciating pain. Cases of this kind are extremely difficult to diagnose, because the pain will not be located in one tooth, but it will distribute itself at intervals all over the mouth. I have recently had a case of the kind that taxed my ingenuity in every way to know where the pain was located. Only by extracting two or three dead roots did I give the patient relief so that he could sleep without the aid of a narcotic. Nature, rest, or nutrition could not relieve this kind of difficulty; so that it comes down to skill instead of nature.

As our friend Dr. Patrick says, "Nature is the poorest remedy of life." Nature would not relieve the broken leg of a frog; skill comes in to relieve his suffering. This is one of those interesting subjects which puzzle us, and on which we need a large amount of varied information and judgment to know how to treat cases when they come to us. What is the remedy for exostosis or the deposit of ossific matter upon the pulp of a tooth? If the deposit has not gone so far as to make it impossible to reach the pulp with arsenic, or a broach, or something whereby you can destroy the pulp, you can get relief. But if the deposit has gone, as I have had cases, so far that you cannot reach it with a drill or in any other way, I know of no remedy but to extract the tooth. You can readily see how an ossific deposit upon the pulp of a tooth will cause pain. It is a pain difficult to diagnose. You will get but little periosteal inflammation. By tapping the tooth you will get perhaps no symptom of pain, and you get very few symptoms from applying the cold or heat test. I have said on previous occasions, that after we had searched everything and did not find the cause, we should open into the pulp cavity and see if we have not ossific matter deposited there. Abscess of a tooth, a tooth that is aching from gases or decomposing matter in the pulp cavity, soon shows itself at some local point. It will locate itself in other ways. A particular tooth getting sore you soon get at the origin of the trouble, then the remedy is easily applied. The difficult cases are those in which you cannot locate the pain, and yet you know it is somewhere in some of the teeth. You cannot go to work with courage and commence to extract teeth and drill into them, but sometimes by opening a particular tooth you find the cause of the pain.

DR. J. H. WOOLLEY: If I was to define pain, I should say it was a mental phenomenon, because where the individual is unconscious and the surgical operation is going on there is no pain. I would like to have heard the subject of pain treated in an hereditary sense in the same way that automatic action of the spinal cord is acquired or inherited to some extent as we see it in walking and in movement. Take, for instance, the lower animals. Soon after they are born they are able to walk because they have acquired through heredity automatic action. I would like to have Dr. Pruyn touch upon the idea of pain inherited in different families. Some families suffer great pain on account of trivial causes, others to the contrary. We notice in patients that come to us that some of them suffer long and tedious and painful operations with comparative ease, or with very little pain as compared with other individuals. Were we to trace back to heredity, we might get at some of the true causes of pain as being inherited. It seems to me, that it is a very fruitful subject of inquiry. We might turn our thoughts in that direction, and consider pain, as I have previously said, a mental phenomenon.

DR. PRUYN (closing the discussion)—What little I have to say, I will try to say hurriedly owing to the lateness of the hour. I am afraid that Dr. Crouse misunderstood me, as he spoke of the impossibility of rest being the remedy for pain, when caused by the extra ossific deposit within the pulp itself.

In the treatment of this subject I spoke upon general principles, and stated plainly that in *all* diseased conditions, whatever they are, the first thing to do is to remove the cause.

If there is an irritant, remove it, and then put the parts at rest.

If after exhausting all other known means of finding out "what is the matter," diagnose by exclusion, and if there seems to be the least shadow of doubt regarding the normal condition of any tooth pulp, and it does not yield to local and constitutional treatment then boldly enter the pulp chamber and destroy its occupant.

It is better to do this under the precautions just mentioned than to allow your patient to suffer the intolerable agonies of neuritis, even though there is always the possibility of an error in diagnosis in such cases. Remove first of all the cause rather than the symptoms. I wish we could always find the cause but we cannot.

Discussions of this kind stimulate us to go farther into the investigations of causes. That is the object of getting up this paper. Let us get out of the rut of dental specialism and look a little more to other possible causes that may lie outside of our strict calling as dentists, as we may find there a multitude of causes that may affect the oral cavity.

Dr. Newkirk has called attention to exercise in the relief of pain. Exercise would be rest in those cases where the emunctories of the system have not been carrying off the impurities.

Dr. Woolley speaks of pain as being a mental phenomenon. I wish it were only a mental phenomenon. I think it is something more than that. I have looked through all the literature I could find for a definition of pain, and I have not found anything as satisfactory to myself as the definition I gave, namely, "Pain, an exalted sensation of a nervous function perverted."

Suppose we had gone out of doors this bright, beautiful winter's morning into the dry, bracing, frosty atmosphere, which was so stimulating to exercise a good feeling, and made us feel as though we should like to run and jump over a wall. Then suppose we had ceased the exercise and removed some of our clothing, the result would be that what was at first a stimulant became a depressant and an uncomfortable sensation resulted. We would then have my definition of pain, viz: an exalted sensation of a normal function perverted. Again—a warm bath produces a pleasant sensation, but go a step farther and a very hot water bath produces a perversion of normal functions.

All stimulants are depressants according to the degree in in which they are used.

Dr. Woolley: I would like to ask Dr. Pruyn a question. Is it not true that fear sometimes produces death?

Dr. Pruyn: Undoubtedly. So does joy or any other very sudden shock to the nervous system.

Dr. Woolley: Do not fear and great suffering sometimes cause the hair to turn white?

Dr. Pruyn: Yes, sir.

Dr. Woolley: Does not that fear change the condition of the cells of the roots of the hair?

Dr. Pruyn: A positive shock to the nervous system sufficient to produce the phenomena you mention, has never been fully explained by any one to my knowledge, and I certainly would not attempt it.

Dr. Woolley: Does it not have an effect upon the mind?

Dr. Pruyn: Most certainly, but what that effect is, no one fully knows. We simply hide our ignorance under some high-sounding term, as there are a great many things yet we do not know.

Odontographic Society of Chicago.

Annual Banquet. Discussion of Dr. Barrett's paper, "Great Eras in Life."

Dr. H. H. Wilson, *Mr. President:* In the course of the admirable address to which we have just listened, the speaker alluded to the diseases of dentition, and said that if time permitted he should be glad to pursue the subject further. I am sure there is not one present who would not be glad to listen a great deal longer, and I know that I voice the wishes of those present, when with your approval, I request Prof. Barrett to give us something further upon that subject.

President Tuller: Your applause, gentlemen, at the request made by the chairman of the committee of arrangements, shows that you are all of one mind, and that you wish to hear Prof. Barrett further. I hope he will gratify us.

Dr. Barrett: I suppose that this means that you are willing to hear me develop my views on the subject of the so-called diseases of dentition. I will endeavor to be very brief.

My opinion is that their history is like that of the snakes of Ireland; there are none. Not that children do not die during the period of dentition, but I do not believe that they die of teething. Statistics show that by far the larger proportion of the human family perish before they have got all of their deciduous teeth, and the average physician says that the cause is—teething. In my humble opinion this is but the refuge of unthinking, heedless, or incompetent generalizers. The men who assert this may be too indolent or too ignorant to weigh all the factors that enter into the case. It is so easy to attribute the oft-recurring deaths to a hidden, recondite cause, to accept a ready-made diagnosis that shall exculpate the attending physician, and be acceptable to the bereaved family, that perhaps it is but human nature to seize upon it.

And yet, what is the character of these diseases of childhood that are so fatal? They belong to disturbances of digestion and nutrition. They are the diarrhœa and dysenteries, and the fevers which accompany them. What influence, except possible reflex disturbances, can the progression of the teeth have upon the digestive tract? If there are disorders caused by dentition, they will necessarily be of the nervous, and not of the nutritive system. They will not manifest themselves as diarrhœas, but in reflex nervous disorders. That must be apparent to every physician who makes an intelligent examination of the subject.

I have said that the child gets new teeth because it is at the same time getting a new stomach. The one is but indicative of the other. I reminded you that the undeveloped digestive organs cannot prepare for assimilation matter that is not already partially digested. That the mother's milk, or in its absence the malted or peptonized foods, are the only ones with which the formative apparatus of the young child can successfully cope. And yet, you know how often the infant of six or seven months is fed from the table, with the amylaceous matter which it is utterly unable to convert.

What is the consequence? The ingested material lies a foreign substance in the stomach. The child rejects it at first, because instinct teaches it that it is unfit for use. But the injudicious mother or nurse persists, until after a time an appetite is created, as in later life one for tobacco or whisky is acquired. When first swallowed this matter is regurgitated without nausea. This method of relief soon fails, and the matter is passed the other way. It acts as an irritant, as are all cathartics, and is hurried through the digestive tract, and a diarrhœa is the result. Continued persistence in giving such food results in a chronic disturbance, or a dysentery, with the fevers which invariably accompany these disorders. They are but the result of the efforts of nature to rid the system of the foreign matter. If it be hot weather the condition is exacerbated, and the child dies of the digestive disturbances, or of the spasms and convulsions which are their reflex sequel, or at best survives to become a confirmed dyspeptic, a state even worse than death.

Study the statistics of this or any other great city, and see what are the times of greatest mortality. It will be found that during January, February, March and April, in this climate, the death rate is low, and does not vary materially from month to month. But in May and June there is a sudden jump upward, and perhaps ten times the number of children die in the same space of time. In July and August the death rate drops a little, while in September it takes another upward leap, to fall very rapidly in October, and in November to return to about the level of January and February. More children die in June and September than in all the other months of the year, May or July possibly disturbing the figures.

And yet, as many children are cutting teeth in January as in June. Dentition does not advance more rapidly in September than in November. What is the cause of the greater mortality in the one month than in the other? It cannot be teething, because that is constant. My answer is that in May and June come the early spring vegetables, and the adult members of the family change their diet. Among the poor of the great cities, where the rate of infant mortality is so high, this transition is very grateful after the monotonous table-fare of the winter, and they think it too bad to deprive the baby of that which is so palatable to themselves, and so the little one is fed to its death. Immediately upon the accession of the early vegetables, begins the high death rate from diarrhœas and gastric disturbances.

Again, in September the fall fruits and vegetables are brought into market, and once more the death rate climbs up. These things afford food for thought, and it is the bounden duty of the dentist to examine into them, and see if it be true that the mere accession of teeth brings such widespread death and disturbance to the human race. We all know that there are almost no irregularities or wide departures from the normal in the deciduous teeth. These are almost exclusively confined to the permanent dentition, and hence we might expect that with the coming of the second teeth the digestive troubles would be intensified, if they are due to that cause. Yet this is not the case, and the reason is, in my opinion, that the era of a more perfect development of the digestive organs has arrived, and that this is indicated by the advent of these larger and more highly organized teeth. I desire to be placed on record as asserting that, were it not for the lack of discernment concerning the so well marked eras of our life, and the consequent check to development which the young child receives, the abnormalities of the second dentition would be far less in number.

In the very few additional moments which your kindness has given me, I can only direct your attention to these things, and point out to you what a great field for research and observation is here offered us. We can set medicine right in one, at least, of the many blunders which she has made. We are not bound down by any antiquated traditions, or tied to any inherited creed. The whole domain is ours to explore *ab initio*. We shall not be true to ourselves or our profession, if we refuse or neglect to examine these matters for ourselves, from the standpoint of our own professional experience, and in the full glare of that illumination which our special opportunities for study afford us.

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SECTION ON ORAL AND DENTAL SURGERY.

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THE DENTAL REVIEW.

Devoted to the Advancement of Dental Science.

PUBLISHED MONTHLY.

EDITOR: A. W. HARLAN, M. D., D. D. S.

ASSOCIATE EDITORS:

C. N. JOHNSON, L. D. S., D. D. S. T. L. GILMER, M. D., D. D. S.

NOMENCLATURE.

A review of our literature for the past decade will convince the most skeptical or the most disinterested member of the dental profession that a great reform is needed in the matter of nomenclature. Scarcely two writers use precisely the same terms to designate any given thing in the description of instruments or operations. To read the average article where nice points of distinction are sought to be made in the nature and position of cavities, for instance, on certain surfaces of the teeth, is to guess largely at what the writer is trying to teach.

It would seem to us that upon these matters dentists are in the habit of thinking more definitely and systematically than they are able to express with our present irregular nomenclature. Not that there are too few terms in use—the contrary is probably true that there are too many—but that those we have are not used in a systematic arrrangement nor with any uniformity so far as different writers are concerned. In fact there is no recognized nomenclature in the profession, and the time has arrived for something definite to be done. The rule in the past has been for some particular writer to give a name to a thing because he thought it ought to have such a name, and then go on and use that name with or without good reason for doing so. Another man with equal strength of conviction would give another name to the same thing and thus two names were started going and each used and supported by each man's followers. This process has been repeated so often that, to say the least, our nomenclature is confusing. This is unworthy a scientific calling, and if we are going to effect a perceptible reform we must follow in the footsteps of other sciences and formulate a nomenclature which shall be at the same time comprehensive and simple, and which when agreed upon by the most thoughtful and scientific men in the profession shall be adopted by some of the leading associations and thus made the recognized and only authorized system of nomenclature.

A step in the right direction was taken when a committee on nomenclature was appointed for the coming congress, and we urge the profession at large to prepare themselves for the consideration of a report from this committee which shall be as comprehensive as it is possible to make it in the time given. It is not probable that any uniform system of nomenclature can be formulated and familiarized in the minds of the profession sufficiently to render its definite adoption advisable at this meeting. The great mass of the profession are as yet not enough alive to our present defects nor do they sufficiently realize the possibilities of a systematized reform to consider this matter at this time as carefully as its importance merits.

But we hope for much from the report of this committee for we have faith that the matter will be presented to the profession in such a manner that the subject of nomenclature can no longer be ignored. The work has been fortunately placed in the hands of men best adapted for it. The chairman, Dr. Black, has for some time prior to the appointment of such a committee been at work along this line and the congress will get the benefit of his deliberations.

We merely wish to call especial attention to this feature of the meeting with the hope that dentists from all parts may study the matter somewhat carefully and come prepared to do the report of the committee a full measure of justice.

C. N. J.

THE POST GRADUATE DENTAL ASSOCIATION.

There are few men in the profession who realize the importance of the work undertaken by this association, nor the zeal manifest by the officers in carrying it to a successful issue. If ever an organization in the profession deserved to prosper it is this one. The aims are wholly unselfish, the officers are honest, earnest, and capable, and the association is not in conflict with any other body in existence.

In this connection it might be well to correct a misapprehension that has apparently entered the minds of some at a distance who are not intimately informed as to the true object and workings of the association. An idea gained temporary ground that in some way the Post Graduate Association was to interfere with the regular college work. The very opposite is true. The whole sentiment of the association is to encourage college education—it is to supplement it. It does what the college never can and never will do. It reaches the great mass of practitioners whose environments preclude the possibility of attending a regular course of lectures at college, but who require some kind of coaching in their studies at home if they are ever to make any advancement. It is intended to include both graduates and nongraduates alike and to stimulate both. Without such an organization this class of men would never get out of the rut into which a large majority of the rank and file of the profession inevitably drift if left to themselves.

The association hopes to infuse a professional spirit into these men, to give them a taste for study, and to raise in them a laudable ambition toward higher attainment. If the association gets the support it deserves, the inevitable result will be a large acquisition to societies and other ethical organizations of men who otherwise would drift into incompetency or even quackery.

There is great need for just the kind of work the association is doing ; for the majority of the profession as yet stand outside the gates of societies, and many of them look askance at the truly ethical and truly progressive man with the idea that there is somehow a barrier between them.

This state of things should not exist, for a careful analysis of the situation will show that there are to-day a large body of men who have never had the advantages of a college education, and who so far have kept away from societies, but who possess in the highest degree the elements of advancement, if only touched in the proper chord and made aware of the fact that there is a place waiting for them alongside of the best men in the profession.

We commend the Post Graduate Dental Association to the consideration of all dentists, and we bespeak for the officers that encouragement which their devotion to the work should entitle them.

C. N. J.

Dental Law for Illinois.

Efforts are being made at the present time to have the dental law, passed in 1881, amended so that it will be more effective in its operation. The Board of Examiners have found it no easy task to prevent impostors from beginning and continuing the practice of dental surgery in this State on account of lack of funds, and the impossibility of securing conviction of offenders. It is hoped that every dentist will aid in securing the passage of a stringent law to protect the public from charlatans and illegal practitioners. A committee of twenty-one was appointed at a mass meeting of dentists, held in Chicago in January, who are now at work in conjunction with the State Committee appointed last spring by the Illinois State Dental Society. It is only by united effort of all the dentists of the State that a law can be passed that will adequately protect the dentists and the people.

We appeal to every one interested to aid the committees in their joint work, so that the statute books will have a law working hardship to none and be of benefit to the community at large. Contributions of money for expenses of the work in hand may be sent to the Treasurer of the Committee, Dr. F. Huxman, or to the Treasurer of the State Society, Dr. W. A. Stevens, Chicago.

"Painless Dentistry."

At the present time, in certain localities there is much eager inquiry among dentists, especially among the younger men, about local obtundants for sensitive dentine.

The perfectly legitimate and ever prevailing wish for a prevention of pain in this respect is probably stimulated just now by the increasing number of men offering for sale nostrums for this purpose. The advance of dentistry has been so rapid of late, one new and remarkable improvement following another in quick succession, that it is not surprising that many are overcredulous and easily deceived as to remedial agents represented so desirable as those above mentioned. We cannot too strongly impress upon our readers the importance of careful investigation before accepting such, when presented by men who are strangers, not only to the profession, but to science as well. Great remedies have occasionally been accidentally discovered. It is said that the virtues of

Peruvian bark were so found out. But not so have the greater number of those most useful to humanity been brought into use.

When a new remedy is offered coming through proper channels, try it—if valuable, use it, but let severely alone all others. A practitioner is liable to prosecution for malpractice, who uses or permits to be used upon his patients, applications, the ingredients of which he is unacquainted. So, according to the old German saying, "Never buy a cat in a bag."

Let the young dentist remember, that no remedy really valuable can long be kept secret, and let him not be disturbed because the man across the street is seemingly carrying the day by the use of his "painless dentistry." Humbuggery, whether through ignorance or cupidity sooner or later recoils upon the one engaged in it, while prudence and fair dealing are sure to bring a good measure of success.

T. L. G.

Date of Opening the Congress.

Monday, August 14th, 1893, at ten o'clock in the morning the Dental Congress will be opened. This was rendered necessary by the action of the President of the World's Congress Auxiliary, he not being able to supply the room required from one week to another. Make a note of this.

Now is the time to send in your ten dollar membership fee to the Treasurer. Little drops of (ten) dollars will soon make a thousand.

DOMESTIC CORRESPONDENCE.

Letter From New York.

New York, January 11, 1893.

To the Editor:—The meeting of the First District Society of New York at the Academy of Medicine on the evening of the 10th, seemed like one of the old-time gatherings when Dr. Atkinson was alive to stir up the blood and energy of the members, and make every one disputatious or willing to contribute a share in the discussions. Many of the old-time members were on hand and delegations from Brooklyn and the ever ubiquitous Jerseymen were seated here and there in the audience. Resolutions of eulogy and regret were read by Dr. W. W. Walker, chairman of the executive committee, on the death of Members Dr. John Allen, who was awarded the credit of being the originator and among the first to bring in use continuous gum dentures; also Miles H. Dodge and L. M. Slocum, senior and junior.

The guest of the evening was Dr. A. W. Harlan, who came from Chicago and read an essay entitled "The Herbst Method of Treating Pulps," being mainly an answer to the paper read by Dr. Bödecker at the annual meeting of the State Dental Society at Albany in May last. Dr. Bödecker's paper being the presentation of Dr. Herbst's theories and practice, also some of the experiences of Dr. Bödecker. Dr. Harlan, on being introduced, said he wished to impress on the members his high regard for the professional attainments of Dr. Bödecker as a student in microscopy, a scientific man and a dentist, and in his paper would try and quote as between the author of the theories, Dr. Herbst, and the historian, Dr. Bödecker.

Dr. Harlan quoted Dr. Herbst's method, which was an application to the pulp of cobalt with the addition of hydro-chlorate of cocaine, under a temporary filling for a few days, then cleansed and washed out the disinfected cavity and the coronal portion of the pulp amputated with a sharp round bur rapidly revolved. The pulp chamber washed out with a 1-10 of 1 per cent of bichloride of mercury, dryed and a cylinder of No. 4 tin foil placed therein and with a small round burnisher, the tin smoothly burnished over the amputated pulp stump, the force exerted in a lateral direction, Dr. Herbst's theory being that he obtains a perfectly air-tight covering to the root canal, and in most cases saving the balance of the pulp stump alive.

The most telling points brought against Dr. Herbst's theory by Dr. Harlan was the inconsistency of using the mineral cobalt so closely analogous to arsenious acid and having as far as medical science knows the same proprieties, and to expect an application of a remedy to the living pulp that has been in use as far back as forty years for destroying pulps to conserve its vitality and life is futile. The idea of a mummified pulp being alive seems preposterous.

Dr. Bödecker disclaimed belief in Dr. Herbst's theories as being scientific facts, but quoted from his own experience in fourteen cases, a large percentage being six year molars, and all but one successful in a great measure.

Dr. Carl Heitzman, the histologist, who was present, exhibited under the microscope two specimens from Dr. Herbst of teeth extracted, one under 500 and one under 800 diameters. These clearly showed the living pulp of one when extracted, and the other dead, with evidences of secondary dentine evidently formed from the pulpitis produced. Dr. Freeman gave evidence in twenty cases he had performed, using both cobalt and arsenious acid, with no abscess occurring. Dr. Louis Ottofy, of Chicago, who was present, spoke of his devotion to science and his willingness in sacrificing his wife's relations to trying Dr. Herbst's methods in a number of cases, with so far no serious results. Other members discussed the subject, the concensus of opinion being mainly in favor of the present method of thorough antiseptic treatment of the pulp canals and careful root filling.

Dr. Harlan then made a few brief remarks on the coming dental Congress and urged the moral and financial support of the profession in the eastern States.

Upon the invitation of the President, Dr. William Carr, the members proceeded to the banquet hall below, where they discussed a collation as only the *chef* of the academy could provide, and while on this subject we here say that we most heartily commend this new departure of the First District Society; it is a move in a right direction. The greatest diplomats in the world are not ashamed to own the way to win a man's heart is through his stomach; it is not the mere fact of eating; it is in bringing the members in more personal contact under pleasant surroundings and creating an interest in each other and an enthusiasm for the society. The Jerseymen found out that fact some years ago, and we hope the First District will continue to keep it up as begun.

The next meeting in February will also be one of interest to the members. Dr. Walker, the chairman of the executive committee, having secured Dr. John D. Thomas, of Philadelphia, who will read a paper on "Nitrous Oxide and Kindred Anæsthetics," with illustrations from living subjects.

We notice with pleasure the interest and enthusiasm of Dr. Carl Bödecker as chairman of the clinic committee after the absence of several years, and recall with pleasure his former services.

None too much thanks can be extended to him by the members. We also observe the great harmony which now seems to exist among all the members. I shall be pleased to say something next month on Dr. Thomas' paper. Yours truly,

NEW YORK.

MINNEAPOLIS, MINN., February 7th, 1893.

Dear Editor:—I notice a paper in the last (February) number of the *Dental Cosmos*, entited Orthodontia by Frank French, which was read before a joint meeting of the first and second district Dental Societies of New York. And after reading it carefully, I cannot help from expressing my surprise on the following points:

First, that any one,especially an M. D. S., should read a paper before an intelligent body of men at this present day of progress, on the subject of orthodontia, so entirely void of originality.

Second, that so many, in fact all the points, should be taken bodily from other authors, and presented as original.

Third, that such a paper would be read and calmly listened to, in a society of such supposed eminence, and discussed by members who are also supposed, at least, to be versed in the subject of orthodontia.

Surely, I do not know a Society in the West that would allow or discuss, much less publish to the world, as original, such a paper. Can it be that the once mighty East of Dentistry is getting so infirm that like an old man in his dotage, he mumbles over and over the events of his childhood? Or is the East saving it's thunder for the great meeting in Chicago? Or is the paper a joke, if not what are such papers for, anyway?

EDWARD H. ANGLE.

REVIEWS AND ABSTRACTS.

ELEMENTS OF CHEMISTRY AND DENTAL MATERIA MEDICA. By J. S. CASSIDY, D. D. S., M. D., Cincinnati. Robert Clarke & Co. 1893. Price, cloth, $2.50.

Professor Cassidy has so long occupied the chair of chemistry and materia medica in the Ohio College of Dental Surgery, that this work may be accepted as his own method of teaching the classes in that institution. From a somewhat cursory examination we find that the method of teaching has for one of its chief points of excellence that of brevity and simplicity. It is not overburdened with formulæ as some late works are. If the student masters the work as a whole he will be very well equipped with a knowledge of the subjects treated in the volume.

The adoption of the latest revisions of chemical nomenclature is for the work a decided advance. The main facts are quite abreast with recent chemical research. The only criticism we might make would be that some of the subjects are not treated of so fully, but that the student will be compelled to further study them in order to utilize the available knowledge for daily practice. The plan of teaching chemistry and materia medica and therapeutics in one volume, is not quite in accord with our idea, but it may be best after all. The generally accepted methods in colleges is to teach chemistry, organic and inorganic, from one chair, and materia medica and therapeutics from another. Medical chemistry so far has never been taught, so far as we know, in any dental college as a separate subject. The time is ripe for a work on medical chemistry for dental students, and we hope some one will take it up.

In a second edition Professor Cassidy will probably see the necessity for changing the title of his work to Chemistry and Materia Medica and Therapeutics, and dividing it into two parts, making chemistry the study for the first year, and materia medica and therapeutics the second year's study, with a review of the latter for the third year, or advanced students. All students should receive instruction in therapeutics in the third year, as their knowledge of operative dentistry is widened by the latter year more than in the two previous years spent in college.

PAMPHLETS RECEIVED.

Transactions of the California State Dental Association, 1892, L. Van Orden, M. D., Secretary. Pages 198.

THE TREATMENT OF SELF-LIMITED DISEASES. By Carl E. Black, M. D., Jacksonville, Illinois. Reprinted from the transactions of the Illinois State Medical Society.

HEREDITY. By I. P. Wilson, D. D. S., Burlington, Iowa. Reprint from the transactions of the Iowa State Dental Society.

PRACTICAL NOTES.

A Rapid and Accurate Method of Fitting Crown Bands.

After shaping end of root take the measure with a loop of fine wire held in pin vise and twisted until tight, remove and slip it down on an old mirror handle or other tapering, elongated, conical shaped piece of wood or iron, working it carefully as far as it will go ; mark its position by scratch with a knife passing around ; remove it, cut open, straighten ends, cut strip of gold slightly shorter, bend around and solder to form band, and slip band down on the stick or mandrel. It should be found a trifle smaller than the circumference at the mark. If larger it will of course be necessary to cut open and shorten it. If much too small, slip over end of your small anvil or handle of some instrument, plugger for instance, and tap carefully with riveting hammer until stretched to desired size. I use my gold 29 gauge, 22k, and cut the strip from one-half to one line short, thus always permitting a little hammering to stretch band to required size. The band when complete to fit to root should reach just above the mark, never quite to it, or past it, to allow for stretching of wire in removing it from root and slipping on to the mandrel, and will almost always be found to fit at once, and tightly, thus saving your patient the annoyance and pain of repeated trials, and yourself a considerable amount of time. The cap and pin are completed in the usual manner. It seldom requires more than one to one and one-half hours to complete cap and pin to the point of taking the impression.

Vincent Fischer, D. D. S.

MEMORANDA.

Dr. A. O. Hunt, of Iowa City, was in Chicago in January.

Dr. C. H. James, of Cincinnati, paid Chicago a visit recently.

Dr. P. C. Hinojosa, dentist, has located in the City of Mexico, Mexico.

Drs. G. V. Black and W. O. Kulp were in Chicago the last of January.

The Delta Sig. dinner was a great success. About fifty-five were present.

All who can do so will be present at St. Louis March 15, 16 and 17, to attend the clinic.

A new dental school in New York will be started early in the spring of 1893. Dr. J. H. Reed is the Secretary.

Dr. H. H. Johnson, of Macon, Ga., has returned to his first love—the *Southern Dental* Journal—as sole editor.

Resorcin gr. x., oil cinnamon minims v., alcohol minims lx., water ℥ij. Inject into pus pockets around roots of teeth.

The finances of the congress are uppermost now. The State Committees ought to be sending in money to the Treasurer.

A dental quartette is about to be organized in Chicago for duty during the congress. Drs. H. A. Drake and D. M. Gallie will organize it.

G. S. Miles, D. D. S., of Beatrice, Neb., is dead. Dr. Miles was formerly a resident of Jerseyville, Ill., and ex-president of the Illinois State Dental Society.

While working for a boy about fifteen years of age recently, he asked if I was not going to remove the "dandruff" from his teeth before he went back to school!

Dr. M. L. Rhein uses porcelain facings in bridge and crown work with an inverted bar which fits in the slot. They are cemented to the bridge or crown backing.

In the *Dental Cosmos* the name of Dr. Baume was left off in the list of officers for Germany.

Dr. Robert Carl Franz Baume Berlin is the name of the President. In the prospectus his name is printed in lower case letters instead of caps and small caps, hence the error.

The Post-Graduate Dental Association is already doing, and we hope will continue doing good work by stimulating an interest in reading and study. Why do you not join a reading course?

Dr. W. C. C. Ball, of Norwich, Conn., recently made a full set of teeth for a man ninety-six years old. Who can give a case made for an older person? The patient eats well and without any trouble.

Dental colleges are like individuals, careful or slovenly, just as they happen to be manned or officered. A great improvement could be made in various portions of the country if colleges were endowed.

HUMANITY WELL APPLIED.

The police department should have some good, strong dentist go round on the first day of every year and pull all the bad teeth out of the boarding house pianos.—*Galveston News.*

The students of the Dental Department of the University of Michigan have petitioned the authorities to substitute D. M. D. in place of D. D. S. The reason Harvard assigned when the D. M. D. was instituted was that "Doctor of Dental Surgery" could not be written correctly in Latin to cover the idea of dental physician or dental surgeon, hence *Dentarinæ Medicinæ Doctoræ. Cui bono?*

Some writers in one or two of the English papers have been again pointing out the fallacy of the very common idea that melted snow is an ideally pure water.

The reverse of this is true. So far from being pure, snow is practically, a great purifier of the atmosphere from floating particles and noxious gases. These the flakes of snow imprison or absorb as they fall, and as a matter of course, when the snow melts it is loaded with this rubbish.

More than eighteen months ago the death was chronicled of Laura Bridgman, the wonderful blind deaf mute, whose home had for years been the Perkins asylum in Boston. An autopsy was performed upon the body, and now after months of treatment, the brain has been dissected and examined, and found to vary little in weight and size from that of the average woman, the chief perceptible difference appearing in the unequal development of certain portions.

SPECIAL NOTICE.

The St. Louis Dental Society will hold a three days clinic, March 15th, 16th, 17th, 1893. A general invitation is given for all dentists to attend. The committee having charge of clinic already promise an interesting meeting. Drs. A. H. Fuller, J. Warren Wick and W. M. Bartlett compose the committee.

WM. CONRAD, Cor. Sec'y.

The speed with which the bodies known as meteors enter and pass through the atmosphere, is so much in excess of that of a cannon ball that there is no comparison between the two bodies. A piece of iron may be heated by pounding it on an anvil, and the atmosphere acts like an anvil to the extra terrestrial bodies which enter it. It can be shown by a mathematical calculation that the speed of the meteorite and the resistance of the atmosphere are sufficient to produce the degree of heat observed.

The Medical Congress in Rome will open September 24th and close October 1st. The dental section promises to be well attended from all parts of Europe and the United States of America. We hope to be present at the meeting and take part in the deliberations. This will furnish an opportunity for our transatlantic brethren to first visit The World's Columbian Dental Congress and then round up their vacation at Rome, taking in two great events of the year. Are you coming and going? We hope for both

A NEW SUBSTITUTE FOR COCAINE.

The acetanide of eugenol—which is contained in oil of cloves—has recently been prepared; it occurs in crystalline form, and appears to enjoy the property of producing local anæsthesia in a very high degree. It may be used similarly to cocaine for this purpose, and, as it has no caustic action and is an energetic antiseptic, it may be found to be even superior to cocaine for minor operations on the mucous membranes.—*Lancet.*

THE ST. LOUIS DENTAL SOCIETY.

The annual meeting of the St. Louis Dental Society was held at the office of Dr. J. B. Vernon, Jan. 3, 1893. The following officers were elected for the ensuing year: President, Dr. De Courcy Lindsley; Vice-president, Dr. J. Warren Wick; Cor. Secretary, Dr. William Conrad; Rec. Secretary, Dr. J. G. Pfaff; Treasurer, Dr. Henry Fisher. Committee on Publication: Dr. L. A. Young, Dr. P. H. Isloeffel, Dr. C. L Pepperling. Committee on Ethics: Dr. H M. Baird, Dr. A. J. Prosser, Dr. M. C. McNamara. Committee on Membership: Dr. W. N. Morrison, Dr. C. L. Hickman, Dr. J. H. Spalding.

TACOMA DENTAL SOCIETY.

The Tacoma Dental Society has elected officers for the ensuing year as follows: President, Dr. M. C. Burns; Vice President, Dr. A. J. Gustaveson; Treasurer, Dr. H. L Hedger; Secretary, Dr. W. E. Burkhart.

EXIT STATE BOARD OF DENTAL EXAMINERS.

Drs. R. N. Lawrence, G. Newkirk, C. A. Kitchen, C. B. Rohland and C. Stoddard Smith have resigned from the Board of Dental Examiners. The Democratic Governor has the appointment of their successors.

WELCOME.

Dr. John C. Storey, lately President of the Southern Dental Association, Vice President of the World's Columbian Dental Congress is once more on the tripod. The *Texas Dental Journal* has a new editor—an old one warmed over—but not too well done—always palatable as stories—good stories always are.

INTERDENTAL SPACES.

I have been able to get as good approximal, contour fillings in the molars and bicuspids with amalgam as I often see of gold, by using for a matrix a piece of metallic finishing strip, held in place by the Booth matrix clamp, which consists of a steel wedge hollowed out so as to fit the contour of the crown, one of which is at each end of a strong clamp. This applied outside the strip matrix holds it solid and wedges the teeth apart at the same time.

Use a good amalgam as dry as possible, pack solid, wiping out the excess of mercury with pellets of cotton or bibulous paper, finishing with amalgam that is hot enough to expel the mercury.

Remove the clamp and draw the strip out sidewise, and finish with a thin strip between. The result is a beautiful contour, knuckling as close to the other tooth as though it had been built of gold, thus preserving the interdental space. Though I do not claim that amalgam is as good as gold, yet with care good results can be accomplished C. H. West,

Farina, Ill.

P. S.—The above was called out from reading a statement that nothing but gold would make a contour filling and at the same time preserve the interdental spaces.

ST. LOUIS DENTAL SOCIETY.

The St. Louis Dental Society has appointed Drs. A. H. Fuller, J. W. Wick and W. M. Bartlett a committee to arrange for a series of clinics in operative and mechanical dentistry to be given in that city on Wednesday, Thursday and Friday, March 15, 16 and 17 next.

It is the intention of the society to make this one of the most interesting and instructive meetings ever held in the west.

They want every reputable dentist in the country who can to be present. There will be a chance to show what they have that is new and see what others can do. The clinics will be first-class from start to finish.

The Hotel Endeavor, office 100 Washington Street. Chicago, is the headquarters for International Christian Endeavor; headquarters for Young Men's Christian Association, State, Sunday, and normal schools, college societies, etc. This will be a good place for those who desire to reside in a temperance district—total abstinence in fact. Letters addressed as above will receive attention.

Dr. Benjamin Lord folds his cohesive gold *inside* the noncohesive for strength

NOTICE.

The address of the chairman of the local committee of arrangements of the congress is 126 State St., Chicago, Dr. Frank H. Gardiner. Any one desiring to secure a stopping place before the congress opens, hotel, boarding house or rooms, will address him as above. A post office will be established in the building where the meetings are to be held.

The exposition buildings are located about seven miles from the meeting place. When writing for accommodations, state how much you desire to pay for them and enclose a stamped self-addressed envelope for the United States or Canada only.

To the Editor of the DENTAL REVIEW:

In the October number of the REVIEW in a report of the discussion of the paper on "Filling with Crystal Gold on the Surface of Amalgam," Dr. J. N. Crouse says, "Show me any college that teaches its pupils how to pack soft cylinders of noncohesive gold, and I would like to have a photograph of it. If there is one in this country that does it, I do not know where it is." At the annual meeting of the Indiana Dental Association, held in 1875, I read a paper on the use of noncohesive cylinders or blocks in just such cases as were under discussion.

In nearly if not quite every meeting of our society since it has been a topic of interest, either by discussion or clinical demonstration. It has also been taught in the Indiana Dental College by lecture clinics and requiring each student to become familiar with its use.

Respectfully,

KOKOMO, IND. S. T. KIRK.

NEW DENTAL SOCIETY.

ROCK ISLAND, ILL., January 28, 1893.

The dentists of the three cities, Davenport, Ia., Rock Island and Moline, Ill., have formed what is known as the Tri City Dental Society, meeting every month in one of the three cities.

The officers are: President, Dr. C. R. Baker, Davenport; Vice President, Dr. L. W. Skidmore, Moline; Secretary, Dr. R. M. Pearce, Rock Island; Treasurer, Dr A. H. McCandless, Rock Island. Board of Directors: Dr. J. B Morgan and Dr. H. G. Pope, of Davenport, and Dr. W. G. Skidmore, of Moline.

At our last meeting held in Rock Island, Dr. E. T. Rigby, of Davenport, read a paper "Saliva the Cause of Decay and the Source of Salivary Calculus." A discussion followed by the members.

Respectfully,

R. M. PEARCE, *Sec'y.*

THE ODONTOGRAPHIC SOCIETY OF CHICAGO.

Programme of essays to be read before the Odontographic Society of Chicago, for the year 1893:

January—Annual Dinner. "Great Eras in Life," W. C. Barrett.

February—"Gold in Operative Dentistry," J. G. Reid.

March—"Preparation of Teeth and Roots for Crowns and Bridges," A. W. McCandless.

April—"Nitrous Oxide," J. W. Slonaker.

May—"Prophylaxis," C. F. Noyes.

June—"Electro-Therapeutics," F. E. Phillips.
September—"Matrices and Separators," A. B. Allen.
October—"Affections of the Upper Air Passages," H. B. Williams.
November—"Hand Instruments *versus* Engine," Edmund Noyes.
December—"Hypnotism in the Practice of Dentistry," Geo. B. Perry.

OBESITY TREATMENT.

Prof. Dujardin-Beaumetz treats obesity in the following manner: Every morning the body is sponged with tepid water to which some cologne water has been added after which energetic dry friction and massage of the body and of the limbs are practiced. A wineglass full of some laxative water (rubinat, carbana, villa cabras, etc.) is taken every morning, and after each meal, a tablespoon of a 6:100 solution of potassium iodide in distilled water.

The following regimen is to be strictly followed: Breakfast should be taken at about 8 o'clock, and should consist of 20 grammes (5 drs.) of well baked and crisp bread, and 1 chocolate tablet. The second meal, at about noontime, is to be constituted of 100 grammes (3¼ oz.) of meat or 2 eggs, 100 grammes of green vegetables or salad, 15 grammes (½ oz.) of cheese, 50 grammes (1⅝ oz.) of bread, and a moderate quantity of fruit. A glass and a half of white wine is also to be taken, diluted with vichy water. The third meal, at about 7 o'clock in the evening, should consist of 100 grammes (3¼ oz.) of meat, 100 grammes of green vegetables, 15 grammes (½ oz.) of salad or cheese, 50 grammes (1⅝ oz.) of bread, fruit in moderate quantity, and drink as at noon; soup is to be avoided

No drink should be taken between meals, and the use of coffee, tea, brandy, and liquors is to he abstained from. Finally, exercise progressively increased and with increasing zeal completes the treatment.

PROGRAMME OF HAYDEN DENTAL SOCIETY, CHICAGO.

Monday, January 16th, 1893, 8 P. M., Essayist, E. D. Swain. Subject, "The Sphere of the Young Man in Dentistry."

Monday, February 20th, 1893, 8 P. M. Essayist, J. I. Parker. Subject, "Gold as a Filling Material." Discussion opened by A. W. McCandless.

Monday, March 20th, 1893, 8 P. M. Essayist, A. W. Freeman. Subject, "Cements." Discussion opened by C. N. Johnson.

Monday, April 17th, 1893, 8 P. M. Essayist, J. J. Cornelius. Subject, "Treatment of Pulpless Teeth." Discussion opened by Edmund Noyes.

Monday, May 15th. 1893, 8 P. M. Essayist, John Messenger. Subject, "Crown and Bridge Work." Discussion opened by W. H. Taggart.

Monday, June 19th, 1893, 8 P. M. Essayist, Louis Ottofy. Subject, "The Congress." Discussion opened by J. W. Wassall.

Monday, September 18th, 1893, 8 P. M. Essayist, C. H. Sippel. Subject, "The Work of the Dental Congress." Discussion opened by T. W. Brophy.

Monday, October 16th, 1893, 8 P. M. Essayist, F. S. Flagler. Subject, "Operative Dentistry." Discussion opened by J. G. Reid.

Monday, November 20th, 1893, 8 P. M. Essayist, A. T. Olmstead. Subject, "Prosthetic Dentistry." Discussion opened by B. J. Cigrand.

Monday, December 18th, 1893. 8 P. M. Essayist, T. E. Powell. Subject, "The Use of Amalgams." Discussion opened by A. W. Harlan.

Officers, 1893—President, M. B. Rimes; Vice President, C. H. Sippel; Secretary, Louis Ottofy; Treasurer, Hugh McNeil.

Board of Directors—J. J. Cornelius (until January, 1896); Louis Ottofy (until January, 1894). A. W. Freeman (until January, 1895).

Board of Censors—H. N. Messenger, W. F. Michaelis, J. J. Parker.

THE WORLD'S COLUMBIAN DENTAL CONGRESS.

IOWA CITY, IOWA, January 14th, 1893.

TO THE EDITOR OF THE DENTAL REVIEW.

Dear Sir:—The following communication was received from President Bonney, of the World's Congress Auxiliary, which necessitates a change in the time of meeting, and also a rearrangement of the order of business for the World's Columbian Dental Congress:

"The Dental Congress has been assigned generally to the week commencing Monday, August 14th, 1893. The Congresses of Science and Philosophy have been assigned to the week commencing Monday, August 21st, 1893. With more than a hundred Congresses to provide for, you will readily understand the extraordinary difficulty of making suitable arrangements for each, but the extra provision which has been made for the places of meeting will render practicable arrangements which under the ordinary circumstances would be simply impossible. When the Congresses were first proposed we expected to have only one large audience room, with a suitable number of smaller halls; but as the World's Congress work enlarged the places of meeting were also made more adequate. As the World's Congress Art Palace is now planned, there will be two large audience rooms, capable of accommodating three thousand persons each, and more than twenty smaller halls, which will seat from three hundred to seven hundred persons each, thus providing for no less than thirty-six large meetings, and three hundred and sixty smaller meetings in a single week, by holding morning, afternoon and evening sessions. Among the other Congresses assigned to be held in parallel with the Dental Congress, are those of Pharmacy, Medical Jurisprudence' and Horticulture. For all these the accommodations will be adequate. You understand, of course, that everything in the nature of an exhibit is required by the exposition authorities to go to Jackson Park. The Congresses deal not with things, but with men, not with matter, but with mind.

In accordance with the above statement the time of meeting will be from Monday, August 14th, to Saturday, 19th inclusive.

Please note this change in your journal. Yours very truly,

A. O. HUNT,
Secretary of the Executive Committee.

ANTISYPHILITIC TREATMENT—PROPER DURATION.

This is one of the most interesting and, as is well known, most disputed questions of medical practice. The physician is often puzzled in making a proper choice, and in the end, and after much hesitation, generally decides upon what in his experience has been the mean duration of treatment. But how often do we see patients who, after having been under medical supervision for a length of time abandon the doctor to treat themselves—believing to have a sufficient experience to permit them to do so, and thus destroy their constitution by a too prolonged use of mercurials when the latter are no longer indispensable, yea, often even harmful!

In a communication to the Paris *Societe de Therapeutique*, Dr. Bontemps, of Saumuz, supported the doctrine of Prof. Fournier, who asserts that in no case can the duration of the antisyphilitic treatment be fixed at less than three or four years. As at the same time, the patients ought to observe in the medication certain alternations and periods of repose or dishabituation, Dr. B. has arranged the following table, a convenient vade-mecum for the practitioner:

1st year—
  6 months of mercurial treatment,
  3 months of potassium iodide,
  3 months of repose.

2d year—
  2 months of mercury,
  5 months of iodide.
  5 months of repose.

3d year—
  2 months of mercury,
  5 months of iodide,
  5 months of repose and sulphur baths.

4th year—
  No mercury,
  Potassium iodide, with intervals of
  Repose and sulphur baths.

NOT TIDES, BUT BAROMETRIC WAVES.

JACKSONVILLE, ILL., Nov. 25.

Editor of The Tribune:

My attention has been called to a paragraph in your issue of Nov. 16, "Tides at the Columbian Exposition," in which you state that variations of two feet have been observed in the water level in the lagoons at the Exposition grounds. If the barometer on the east side of the lake should register twenty-nine inches, and at the same time register twenty-eight inches at Chicago, the difference in water level should be about twelve inches. But such a difference in the barometer is rare. A high or low barometer is practically never stationary.

If it so happens that the movement is of such velocity as to favor the formation of a wave running with the advance of the barometric change a considerable fluctuation will result, even though the barometric change is not great. In other cases a sharp barometric change, the movement of which is unfavorable to the time of wave movement, will produce very little fluctuation. This I conceive to be practically the explanation of these so-called tides. They are not tides in any true sense. They are barometric waves.

The highest barometric wave I have myself observed occurred in Little Traverse Bay some thirteen years ago. The fluctuations in this case were seven feet eight inches from trough to crest of the wave, and the time was two hours and ten minutes. The barometer was falling.

Five years ago I was caught out on the north end of Lake Michigan in a severe gale, blowing from the west. During the continued violence of the wind the ebb and flow was six feet from crest to trough, though the fluctuation ceased twelve hours before the abatement of the wind. This was not simply a piling up of the water before the wind. The barometer was rising rapidly.

Eighteen or twenty years ago considerable damage was done in Toledo, Ohio, by the waters of Lake Erie backing into the Maumee River and flooding a portion of the town. Last spring the water receded from great Traverse Bay so far as to uncover the intake of the water-works of Traverse City, causing inconvenience and damage.

Fluctuations of one or two feet are not uncommon and may occur on calm, sunny days that persons unaccustomed to meteorological observations would regard as "settled weather." They may occur with the rising or falling barometer. The sharpness of the barometric ridge, or trough, though certainly an important element, does not seem to be the determining factor. It seems to be connected with the velocity of the eastward movement. This movement seems not to be rapid, perhaps less than thirty miles per hour, and probably such that a wave may spring up and run forward in unison with it, or in some vibration time relation with the eastward barometric movement.

To Chicago the subject is of especial importance, for these fluctuations are continually carrying the sewage out of the Chicago River into the lake, churning it back and forth, and poluting the city's water supply. If for a time the lighthouses were made stations for the observation of these fluctuations, in connection with the signal service, the cause would probably be accurately determined.

G. V. Black.

WORLD'S COLUMBIAN DENTAL CONGRESS.

Codified Rules.

1. All public announcements for the General Executive Committee shall bear the signatures of both the Chairman and the Secretary.

2. The admission fee to the World's Columbian Dental Congress shall be fixed at ten dollars To be collected only from residents of the United States.

3. All papers to be read before the Congress shall be in the hands of the Committee on Printing Transactions at least three months before the date of meeting, and shall not exceed forty-five minutes in time of presentation. Said committee shall have full power to accept or reject any papers, to revise or suggest a revision by the authors, and to publish or not in the transactions the whole or parts of papers read, or abridgements thereof.

4. The official languages of the Congress shall be English, French, Spanish, and German, and the papers shall be printed, in the transactions, in the languages in which they were read.

5. After a paper has been accepted the committee shall prepare a brief synopsis to be published in the official languages of the Congress.

6. The chairman of each committee shall send reports of progress to the Chairman and Secretary of the General Executive Committee at such frequent intervals as will keep them informed of all the work accomplished.

7. All circulars issued by any committee must be sent to each member of the General Executive Committee, and they shall be of uniform size, viz: that of the minute-forms issued by the Secretary.

8. The Dental Congress offers a medal for the best popular paper on Dental Hygiene, for public distribution. To be referred to Committee No. 23, to be called the Committee on Prize Essays.

9. All matters of business presented at the general sessions of the Congress shall be referred to the General Executive Committee, and must receive the endorsement of that Committee before they can be entertained by the President of the Congress.

The management of the World's Congress Auxiliary of the Columbian Exposition having offered suitable accommodations in the Art Building, on the lake front in Chicago, for the sessions of the World's Columbian Dental Congress, August 14th, 1893, the Executive Committee gratefully accepted the same in the spirit in which it was offered, and the Secretary of the committee was directed to transmit to President Bonney an expression of their cordial appreciation of such generosity.

At the request of President Bonney a Committee for Conference for the World's Congress Auxiliary was appointed.

Committee of Conference for the World's Congress Auxiliary.

The World's Columbian Exposition organized the World's Congress Auxiliary, which has received the recognition and support of the government of the United States.

The purpose of the World's Congress Auxiliary is to establish a series of Congresses in which the best workers in General Science, Philosophy, Literature, Art, Agriculture, Trade and Labor may meet to present their experiences and results obtained in all those various lines of thought up to the present time.

In the interest of this movement the Committee on the Dental Congress was appointed by the World's Congress Auxiliary who will be in coöperation with the General Executive Committee of the World's Columbian Dental Congress. The World's Congress Auxiliary have already provided a place of meeting for the Dental Congress which the General Executive Committee have accepted. The World's Congress Auxiliary also requested that the General Executive Committee should appoint a Committee of Conference from the Dental Profession to become a Committee of Conference for the Auxiliary. It is intended by the World's Congress Auxiliary that during the meeting of the various Congresses to have some days or evenings devoted to the interest of the public in the form of addresses, entertainments, etc. Therefore the Committee of Conference was appointed at the request of President Bonney, of the World's Cougress Auxiliary, in order that he might have an authorized body from the profession to aid him in making the proper selections for these entertainments, and to assist him in making the meetings a success.

Dr. W. D. Miller, W. Lennestrasse, 3, Berlin, Germany; Dr. F. Busch, Berlin, Germany; Dr. G. W. Sparrock, Lima, Peru; W. B. MacLeod, L. D. S., 16 George Square, Edinburgh, Scotland; A. W. W. Baker, L. D. S., 18 Lower Fitz William St., Dublin, Ireland; Ernest Sjoberg, Drottingsgaten, 45, Stockholm, Sweden; W. H. Coffin, 94 Cornwall Garden, South Kensington, London, England; W. Geo. Beers, 47 Union Ave., Montreal, Canada; Dr. H. C. Edwards, Americano Dentisto, Madrid, Spain; Dr. E. Lecaudey, Boulevard Haussman, Paris, France; Dr. J. G. VanMarter, 87 Via Nationale, Rome, Italy; Carlo Platschich, Via Meravigh, 2, Milano, Italy; Dr. Joseph Arkovy, Budapest, Hungary; Prof. C. Redard, Geneva, Switzerland; W. H. Morgan, 211 High St., Nashville, Tenn.; W. H. Dwinelle, 15 W. Thirty-Fourth St., New York, N. Y.; R. B. Winder, 716 Park Ave., Baltimore. Maryland; Elisha G. Tucker, 96 Charles St., Boston, Mass.; W. W. H. Thackston, Farmville, Virginia; J. H. Rich, 1309 Connecticut Ave., Washington, D. C.; W. H. Eames, 2602 Locust St., St. Louis, Missouri; J. B. Patrick, Charleston, South Carolina; F. J. S. Gorgas, 845 North Eutaw St., Baltimore, Maryland; G. V. Black, 3493 State St., Jacksonville, Illinois; R. Finley Hunt, 409 Twelfth St., Washington, D. C.; E. Bacon, Portland, Maine; Benjamin Lord, 34 West Twenty-Eight St., New York, N. Y.; A. L. Northrop, 57 West Forty-Ninth St., New York, N. Y.; W. W. Allport, Venetian Building, Chicago, Illinois; W. W. Walker, 67 West Ninth St., New York, N. Y.; L. D, Carpenter, 47½ Whitehall St., Atlanta, Georgia; J. Y. Crawford, Nashville, Tennessee; W. J. Barton, Paris, Texas; J. Taft, 122 West Seventh St., Cincinnati, Ohio; C. S. Stockton, 17 West Park St., Newark, New Jersey; L. D. Shepard, 330 Dartmouth St., Boston, Mass.; H. J. McKellops, 2603 Washington Ave., St. Louis, Missouri; A. O. Hunt, Iowa City, Iowa; H. B. Noble, New York Ave., Washington, D. C.; Geo. W. 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Committee No. 2. Programme Committee.

It shall be the duty of the Programme Committee, under the direction of the Secretary General, to prepare and print a daily programme of the work of the Congress, including a brief synopsis of each paper to be presented, in the official languages of the Congress.

C. N. Johnson, Chairman, 612 Opera House Building, Chicago, Ill; J. A. Dunn, 70 Dearborn St., Chicago, Illinois; Geo. Eubank, Birmingham, Alabama; J. W. Wassall, 208 Dearborn Ave., Chicago, Illinois; Geo. Hardy, 716 Park Ave., Baltimore, Maryland; Louis Ottofy, Masonic Temple, Chicago, Illinois; L. P. Bethel, Kent, Ohio.

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Committee No. 7. Committee on Printing Transactions.

All papers to be read before the Congress shall be in the hands of the Committee on Printing Transactions at least three months before the date of meeting, and shall not exceed forty-five minutes in time of presentation. Said Committee shall have full power to accept or reject any papers, to revise or suggest a revision by the authors, and to publish or not in the transactions the whole or parts of papers read, or abridgements thereof.

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[To be Continued.]

OBITUARY.

EDGAR PARK, D. D. S.

At the meeting of the St. Louis Dental Society, held January 17th, 1893, the committee appointed to prepare a memorial and resolutions on the death of Dr. Edward Park, formerly an active member of this Society, submitted the following report, which was adopted:

IN MEMORIAM.

Died at Middleton, New York, August 12th, 1892, Dr. Edgar Park, in the fifty-second year of his age.

Dr. Park was born in Wainfleet, County of Welland, Ontario, April 21st, 1840. His family were English people. Up to the time of his leaving home, his education was only such as was obtained from the common or public schools. He left his home at the age of sixteen with but a scanty wardrobe and twenty dollars, bound for Texas, but, owing to his financial condition, stopped at Chicago, where he obtained employment, and by taking a course in Bryant & Stratton's Business College, made some advance in education and position. Through the influence and association with his uncle, Dr. Park, of Chicago, with whom he lived, he became deeply interested in the study of medicine and attended a regular course at Rush Medical College. Later his attention was directed to the special branch of dentistry, and he adopted it as his profession, entering upon a course of study at the Ohio Dental College in the year 1864, and graduating at the Missouri Dental College in 1869.

He was associated in practice with Dr. W. W. Allport, of Chicago, for a short time, after which he came to St. Louis and took a position as assistant to Dr. C. W. Spalding in 1865. In 1867 he became associated with Dr. H. J. McKellops, and remained with him until 1870 when he opened an office of his own. He soon secured a lucrative practice, and was highly esteemed socially and professionally. In 1873 he was happily married to Mary C. Fisk, an accomplished and lovable woman, daughter of General Clinton B. Fish.

He continued the practice of his profession until March, 1884, when failing health compelled him to retire, and after an illness of eight years, died at Middleton, N. Y., August 12, 1892. His wife and five children (four daughters and one son) are left to mourn the death of a devoted and an affectionate husband and father.

Dr. Park was devoted to his profession, and was often heard to remark that, "If I were worth a million I would never give up the practice."

He was a progressive man, and ambitious to see the professional standard raised and honored; was foremost with those labored to advance the profession by filling its ranks with honorable, capable men. He was a self-made man in every respect—a man of great natural resources and exquisite literary taste, and extravagantly fond of art, and always longed for the moment when he could have time and means to gratify his taste in this direction. He was a devoted professional brother, interesting, sociable, kind and charitable, an active worker in the St. Louis Dental Society, always ready to do his share in whatever position he was called to act. He received the highest honors in the gift of the St. Louis Dental Society. He was a member of the American Dental Association, and for one year Recording Secretary; also a member of the Missouri State Dental Association. He was, at one time, a member of the Illinois Dental Society.

Dr. Park was a careful, painstaking, conscientious operator of acknowledged ability, and much of his work stands to-day as a monument to his skill.

WHEREAS, In the death of Dr. Edgar Park, our esteemed associate and active worker, the St. Louis Dental Society has lost one of its most worthy and honored members, a man of sterling professional integrity, full of generous impulses and kindly feelings, therefore be it

Resolved, That this expression of our regard and deep regret be spread upon the records of this society, and that a copy be transmitted to the bereaved wife and family, to whom the society tender their sincere sympathy. Also, that a copy of this resolution be sent to the leading dental journals for publication.

WM. H. EAMES,
A. H. FULLER,
WM. N. MORRISON,
Committee.

WM. CONRAD,
Corresponding Secretary.

THE
DENTAL REVIEW.

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ORIGINAL COMMUNICATIONS.

CONSERVATIVE TREATMENT OF THE DENTAL PULP.*

BY W. P. DICKINSON, D. D. S., MINNEAPOLIS, MINN.

In view of the fact that so much may be found in our journalistic literature upon the subject chosen for this paper, the benefit to be derived from its discussion at this time may have been questioned; but if we reflect for a moment, we are struck with the diversity of opinions in relation to the whole matter, and the almost endless variety of means and methods proposed or suggested; so, perhaps the time will not be misspent if in our discussion of it we shall arrive at conclusions that may assist us to more satisfactory procedures in this class of practice. There is much of interest connected with the history of pulp treatment, and the contradictory views which have been successively proclaimed to the profession, more surely indicates to my mind the desire to arrive at a truly scientific basis for treatment, than to promulgate strange theories or startling speculations.

We live in what many delight to speak of as a practical age, and that which has been presented in such a way as to be readily grasped and put into immediate practice is the most certain of favorable reception and adoption.

What then shall we understand by conservative treatment or conservation of the pulp? The lexicographers tell us that conservative means "that which preserves from ruin," and conservation "the act of preserving, guarding or protecting; the keeping of a thing in a safe or entire state; preservation." I am fully aware of the nonagreement of opinion regarding the use or value of the dental pulp after it has served its purpose as the formative organ of the tooth. It is not proposed to debate that question now, but I shall assume the advisability and necessity of preserving it intact, as a means of insuring greater permanency and comfort of the tooth inclosing it. I shall not take any ground against devitalization of the pulp in certain cases, for it is not only justifiable, but is demanded at times. As a rule, however, I am sure that any extended observation will confirm the statement that the cohesive force which holds or binds the tooth together is very much lessened, and that disintegration and destruction is very much more rapid and certain—especially in the crown portion—when its vitality is lacking. Upon this premise, as a motive or reason for saving pulps, I shall say what I have to say.

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* Read before the Minnesota State Dental Society.

The cases where pulp protection is indicated must be selective, as there are conditions, even though pain has not been experienced, where success cannot reasonably be expected, though in a vast majority where there is an unbroken covering of dentine, even though nearly or (possibly) quite decalcified, and though the pulp may have been painful at times, we may have assurance of success in protecting and filling. If the pain is caused by simple hyperæmia, the prognosis is favorable, for this condition usually responds readily to treatment. This state must not be confounded with inflammation, however, as that would materially alter the case. Most cases of mechanical irritation, such as where the pressure of food causes pain, and where its removal gives relief either immediate or very soon, are suitable ones for protective treatment; as are also those, where sweet and sour articles of diet, and hot and cold fluids produce temporary distress. Immediate attention, however, is demanded in all cases coming within this enumeration, to give promise of success. As the condition of the pulp must be judged from certain symptoms, or the absence of them, the ability to form a correct diagnosis is all important, we must know how to differentiate between sensitive dentine on the one hand and pathological pulp conditions on the other. Throbbing pains, either continued for longer or shorter periods, or intermittent, pain augmented when in a recumbent position, or a dull continued pain, do not portend a favorable termination. Patients convalescing from febrile diseases, or those in an anæmic condition from any cause, are not likely to furnish cases for either protection or capping, that we may expect satisfactory results from, and it is said the temperaments modify the chances, so, too, patients of a scrofulous diathesis presenting exposed or very nearly exposed pulps should have them treated by the radical method if at all.

If it is desirable to preserve the pulps in cases where they are nearly exposed, why is it not just as desirable and good practice to make the effort to save them when they are exposed? I am of the opinion that not a few have lost confidence in pulp-capping, because forsooth they have had failures. The keeping of systematic records is a matter which is far too much neglected among us. I feel assured that if we could have a tabulated statement of cases, with methods employed, many of them empirical and very unscientific, with the percentage of successes and failures, it would be encouraging rather than the reverse. The most sanguine and successful general practitioners do not and cannot expect to save every case, because of the almost endless variety of conditions, and the modifying circumstances; so, too, we must not forget there are conditions which make doubt a large factor in the result of treatment in some of our cases. Nature is kind, however, and her healing powers—alone or assisted, when need be— are wonderful. Rational or scientific treatment, which is the same, depends upon and goes hand in hand with accurate diagnosis as I have already intimated.

Healthy pulps, exposed in excavating, may be capped with assurance of favorable results in almost every instance, while those which have become bare in the progress of caries, and which have been in contact with the vitiated fluids of the mouth for some time are the least hopeful.

The influence of malaria—a term by the way very loosely used and often times of very uncertain application—upon the diseases and treatment of dental disorders, has not received the attention its importance demands and certain states of the weather, or conditions of the atmosphere and their effects, offer with the above a fertile field for investigation. I think we can all recall seasons when a succession of cases, alveolar abscesses for instance, have baffled our best efforts. Then again, very little difficulty would be experienced, I have no doubt some of these unrecognized causes have antagonized the means employed. It is asserted by some that it is futile to attempt conservative treatment of exposed pulps, in certain portions of our country by reason of the prevailing malarious influence; such reports come from the Southwest, Texas, from the South Atlantic and Gulf States, from Arkansas and Southern Ohio. On the other hand one practitioner reports a good measure of success in combining constitutional treatment (with quinia) and the local, which leads one to remark that we too often underestimate, or overlook the value of general with local treatment, in many of the diseases which come under our hands.

What then do we anticipate when we protect a pulp which is in danger of exposure, or cap one after it is exposed? In cases indicating either protection or capping, we may expect to restore the delicate organ to its normal condition, and by antiseptic treatment arrest the effects of noxious matter in the tubuli, then by the insertion of some antiseptic covering or lining, which shall be at the same time nonescharotic, nonirritating, nontoxic, and a nonconductor of heat and cold, we may hope for immunity from pain, and the continued vitality and usefulness of the tooth. Whether we may look for a deposition of secondary dentine, or dentine of repair, does not enter into the question, so long as we accomplish the above results; certain it is that many instances are known where exposures have been closed by the deposit of new material, and in others, pulps have been found in a vital state after many months' contact with cappings, with no evidence of the exposure being obliterated in the least.

The history of our subject recounts such a variety of methods and materials, that even an enumeration, though it might gratify curiosity and be interesting, would not be specially profitable now, but a few may not be out of place. Koecker (1826) cauterized "denuded nerves" with a hot iron, leaving nature to heal this as any burn, then covered the exposure with a thin plate of lead, finishing with gold. Asbestos was suggested more than fifty years ago, then followed (without regard to chronology) quill, horn, gold, and other metal caps, oiled silk, muslin saturated with carbolic acid, gold beater's skin, collodion, cork, letter paper, tissue paper, folds, plaster of Paris, gutta-percha, varnishes, balsams, lactophosphate of lime, and others containing opium and other narcotic agents calculated to prevent pain. By far the larger number were expected to accomplish the object mechanically, simply by the interposition of something to provide against undue pressure of the filling material upon the thin covering over the pulp, or as a nonconductor of thermal effects from the filling to this organ, but since the introduction of the rubber dam, and the discovery of the various microörganisms found in connection with dental decay, the insistence of thorough isolation from the fluids of the mouth, with antiseptic treatment, has opened a new era in this class of practice.

Naturally the method, or means of accomplishing any object, which has proved itself reliable and practical in our own practice would be the one we should recommend. Amid all the experimenting and research, that which seems to have come the nearest solving the question up to that time was the use of creosote and oxide of zinc, by Dr. J. S. King, about 1871. Nothing is said of antisepsis as such, but the cavity was to be wiped out with dilute carbolic acid if the pulp was painful, otherwise by wood creosote—the result, in a degree, being arrived at empirically.

For some years the manner of procedure proposed by Dr. King, I pursued with varying results; the addition at various times of other agents to meet special conditions finally suggested the feasibility of combining in one, a material which might be valuable for general use and save my time at the chair; this was done perhaps eight or ten years ago, and has proved all I expected of it. It will not save every pulp, neither will it take the place of discriminating judgment, but I can speak with a good degree of confidence as to the results seen in a continued practice in one locality.

As a preliminary in the treatment of all the cases under consideration the rubber dam must be brought into requisition as soon as the extent of the destruction can be ascertained and the form of the cavity defined; after the cavity is once freed from the mixed fluids of the mouth, they must not be permitted to again enter it—this is an absolute necessity to secure the best results. The disintegrated matter should now be carefully removed, and a few drops of a dehydrating and antiseptic fluid placed in it for a few moments. A most useful form of this is composed of absolute alcohol and chloroform to which is added ol. cassia and ol. menthæ in small quantity. Pyoktanin, and mercuric bichloride in minute amount not to exceed 1 in 2000 of the whole I have used in combination with this, but I now regard the application sufficiently potent without them.

This will not usually cause pain, but when it does, will be only transient, being caused by the difference in temperature of the tooth and application. After being in the cavity a short time, what remains should be absorbed with surgeon's cotton or bibulous paper—never with spunk—and the cavity thoroughly dried with a warm air syringe, taking care not to raise the temperature of the blast too high. A paste composed of the best oxide of zinc and iodoform, with sufficient ol. cassia to disguise the odor, is mixed with eugenol and wood creosote to the consistency of putty, forms the pulp protector, this is placed in proper position with care and in deep-seated cavities a layer of oxyphosphate of zinc can be flowed over it and the work completed as soon as this has set.

The only difference, in the way of manipulation, in capping an exposed pulp, is that the dehydrating fluid must only be used to lightly swab out the cavity, the greatest care in the use of the warm air current, and mixing the paste thinner and placing it in position without the least pressure.

Except in cases of capping pulps exposed in excavations, I usually fill the main cavity with oxyphosphate and leave it in this condition sufficiently long to prove the success or failure of the operation. Oftentimes this remains in for several months.

The capping material, in time, attains a degree of hardness about equal to chalk, such as is obtained for blackboard use, it is not a cement as we usually apply the term, and will not withstand the action of the fluids of the mouth—it is always advisable to flow a thin layer of oxyphosphate over it when practicable, to expedite the work. I do have failures occasionally, but I believe they are mostly due to the fact that the successes make me over-confident, and thus possibly cause me to take unwarranted risks; this is also the experience of others who are pursuing the course of treatment I have outlined. And now a few words further in conclusion. At the earnest solicitation of members of the profession (one, a well-known professor in the University) who wished to test for themselves, the preparations in the exact forms I prepare them for my own use, I was induced to place them on the market a year or two ago.

I understand some objections have been made to them in form, alleging they are made from secret formulæ, etc. I wish it distinctly understood that there has never been any effort to conceal for a moment the constituent ingredients or method of compounding either of them. At the meeting of this Society in 1891, I gave them myself in open session, (See DENTAL REVIEW, pp. 701–702) and I know of the same being done in other State Societies at my request. I have been for many years fully convinced of the desirability and feasibility of saving a large proportion of those dental pulps usually condemned to devitalization, and have consequently exerted my full influence in the direction of conservative treatment; for the logic of assured successes has been more satisfactory to me, than hypotheses based upon a few failures. Holding to the ground so far gained, I fully recognize that the field is not yet fully explored or fully understood, and so commend it to you as an inviting one for earnest investigation.

PRESIDENT'S ADDRESS.*

BY W. C. MERRILL, D. D. S., ALBERT LEA, MINN.

GENTLEMEN: It is hardly necessary for me to follow in the footsteps of my illustrious predecessors, and deliver to you an address such as you have been accustomed to hear upon similar occasions. It would hardly be becoming in me to attempt it, for in order to make it what it should be I would have to combine the many good qualities of the grand men who have done noble duty in this exalted position for the past eight years.

Therefore I will beg your indulgence while I merely bring before your notice some matters pertaining directly to the society and its work.

We are nearing the last year of the first decade of this society, and a perusal of its transactions for the past eight years will show, I think, a decided improvement; at least a transition from the crude and undeveloped, to an attempt to do more useful and scientific work. It must however be confessed that our transactions still do us small credit. The stranger who would judge the Minnesota profession by the scientific work of their society would be a much misinformed man. Although young, yet like a nine year old child that has had all the advantages of education and physical culture, we are well developed intellectually and bodily. I find in looking over reports from other State societies there are none in the union that compare with this. Like all children, disease has attacked us, but thanks to a strong constitution, good nursing and tender care, we were able to ward off the dread monster that threatened our dissolution, and to-day we stand a healthy and robust boy ready to carry on the noble work so early begun. But we are by no means fully developed. If recent dental progress in general has been gratifying, and commensurate with the great expectations of our time, we have also the greatest reason for congratulation that the profession of Minnesota has taken an eminent position in the front. From an early day, leavened with men of the noblest type, the profession of the State has steadily advanced to an admirable elevation, and, as those accessories and opportunities which are largely the growth of time appear, must occupy a position second to none in the United States. Among the evidences of our progress during the past decade I beg to remind you that our profession is yearly being recruited with men of more scientific instincts and aspirations.

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*Read before the Minnesota State Dental Society.

Numbers of our practitioners have supplemented their home clinical advantages with additional study in the many excellent post-graduate schools of the country. We, as a society, must advance still more. While we are accomplishing a great deal scientifically, we must strive to place ourselves upon a higher level by a more extensive and liberal introduction of scientific papers and demonstrations. But they must be briefly presented in their various lights, that ample time may be devoted to their discussion.

Next to the social functions of scientific societies it appears to me that the free, impartial and unrestrained discussion of current topics is most valuable, since in our time it is often more pleasant and more profitable to read a paper in print at one's leisure, than to listen to long or detailed articles in crowded sessions. The personal experience and opinions of such a gathering as this, and and infectious enthusiasm of personal contact with fellow workers is more valuable than the most elaborate article. We must also endeavor by some means to increase our physical stature. There are in this State about three hundred practicing dentists, only a very small per cent of whom belong to any society. How we can best reach this class and draw them into the society is one of the problems constantly before us. To awaken an interest in society work is needful, and in no way, it seems to me, can we better accomplish this than by the formation and maintenance of local societies. From the local society comes the district, from the district the State and from the State go forth the delegates that compose the grand old American.

Another means to be adopted, I hope at this session, is the changing of our by-laws so as to bring the time of our yearly meeting later in the season. The hot, debilitating atmosphere of July is hardly conducive to intellectual development or scientific research. The month of September seems to me to be a much more desirable time for our meeting. By this change we might not only be able to enjoy the climatic advantages of the season, but we country dentists be in a position to take advantage of excursion rates, and if, (as I trust will not be the case) the society sessions become tiresome, can entertain ourselves at either the Exposition or State Fair. It certainly would be a great convenience to us living at a distance, and I think the means of drawing many new members within our doors. We have been reluctant to make changes in our by-laws, but those we have made heretofore, noticeably, placing all business in the hands of the Executive Committee have met with universal approval, and I think this change will be equally acceptable.

Financially we are in a prosperous condition; thanks to the work of the Executive Committee and our worthy Treasurer.

It may be out of place and unbecoming in me to administer a mild criticism, but I think it necessary. Our programme for this meeting you will notice is replete with good things; thanks to the men who so cheerfully responded; but it represents the hard work of only two or three out of a committee of six. Now this should not be thus. When members of this society are appointed upon committees, they should either respond to the call of the chairman and cheerfully perform the work assigned them, or resign, that others may be appointed who will not allow all the work to devolve upon the shoulders of one or two, as has too often been the case heretofore.

Nearly three years now we have been prospering under one of the best State dental laws in the Union; the chief glory, the pride, the protégé of the Minnesota State Dental Society. The passage of that law marked an epoch in the dental history of this State, and I might say in the United States, and reflected great honor upon the Minnesota profession. The results are of more practical benefit to the public of the northwest, and in a measure to the whole country, than all the discoveries in dental science during this period.

Dental art has developed with wonderful rapidity during the last decade. The time was when men from the plow, the drygoods counter, the blacksmith shop, or worse still, from the ranks of illiterate idleness, were after a year more or less spent at whittling out false teeth in the obscure laboratory of some more obscure dentist, turned loose upon an already suffering public to practice their so-called *art*. More respectable and honest, but almost as useless, were the large number of young dentists with which our ranks were largely increased, fresh from the list of unlearned and inexperienced labor, with about eight months or less in the laboratory, and on the benches of more or less chaotic didactic lectures, bearing bombastic sheepskins, which by a keen sarcasm were in a language which not one in ten could read. Many of these have by their ingenuity, supplemented by hard study, developed into very good practitioners, but at what a loss to themselves and society!

By our present dental law the unfitted declines to seek admittance to the place he might otherwise fill for fear of failure, while that same law attracts men proficient in our profession, who gladly embrace the opportunity to establish themselves in a community which distinguishes between the well qualified practitioner and the pretender.

Our Board of Dental Examiners have faithfully and fearlessly performed their duty, and I believe tried to enforce the strict letter and interest of the law to the best of their ability. Possibly there may be some slight dissatisfaction from those overjealous in their profession but I think no intelligent dentist having the good of his profession at heart, can say but that the Board have performed their duties without fear or favor and our present law is all that we can wish. When wise and beneficial laws are made, it has ever been deemed advisable that they should be amended as little as possible. As our Legislature convenes this winter I would advise the election or appointment of two or more members of this society to look after dental legislation, and who will see that no changes are made in our present excellent law, without the approval of this society.

Of the meeting of the World's Columbian Dental Congress it is unnecessary for me to speak as that will be fully discussed later on. I will only advise hearty coöperation with our able and efficient State Committee. This society ought to, and undoubtedly will be well represented at that meeting.

Many if not all of you have doubtless received the catalogue for '91 and '92 and announcement for '92 and '93 of the Dental Department of our State University; and many after opening or possibly before, laid it aside without a careful perusal. It deserves your careful consideration that you may understand what can, and is being done right here at home. It is with much gratification and pride that we have noticed the steady growth and development of this, to us, most important institution within our borders. We all, individually and as a society, should give it all the encouragement possible; by extending to it our hearty support, not merely in words of praise, but by exerting our influence in persuading any qualified person contemplating entering our ranks to properly prepare themselves by a thorough course of study, in the Dental Department of the University of the State of Minnesota.

I wish to briefly direct your attention to an article in the July *Cosmos* entitled "The Census Classification of Dentists", and suggest that appropriate resolutions protesting against the passage in the Senate of the so-called "Wilcox Bill" which was passed by the House of Representatives June 4th, be adopted by this society and a copy be forwarded to the Hon. Eugene Hale, Chairman on census matters, U. S. Senate, Washington, D. C.

Said Wilcox Bill is an amendment providing penalties for failure to comply with the requirements of the census act of March 1, 1889, which provides for the taking of the Eleventh census, and classifies dentists as "engaged in a productive industry," instead of a "selected occupation" as under the census act of 1880.

And finally, friends, let us as practitioners ever strive for the best and highest, remembering the words of Bacon:

"I hold every man a debtor to his profession; from the which as men of course do seek to receive countenance and profit, so ought they of duty to endeavor themselves by way of amends to be a help and ornament thereunto."

IMMEDIATE ROOT FILLING.*

BY C. H. STEARNS, D. D. S., ZUMBROTA, MINN.

Having so little to say, it is with the utmost diffidence that I rise to address this body. Perhaps the best apology I can offer for rising at all is this: Having, in a moment of weakness, allowed my name to go on the programme, in my opinion common honesty requires me to rise in answer to my number. I agreed, in the first place, to write on this subject only on the condition that I be allowed the greatest liberty in its treatment. I shall, therefore, use the title of this paper only as a vehicle upon which to bring forward a few widely separated thoughts. I shall not attempt to present anything new, but simply to reutter a few old and oft-repeated sayings which, if by repeating, I can bring more forcibly to your notice I shall be amply repaid. I do not, of course, address myself to those in the advance line of the profession, but rather to those who, like myself, have met with difficulty and experienced defeat in attempting to surmount some of the smaller obstacles which we meet every day.

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*Read before the Minnesota State Dental Society.

For the purpose of more clearly illustrating principles I shall only speak of the most simple cases, eliminating those difficult of access, with tortuous canals and abnormalities to which no rule can be rigidly applied. The principles, of course, are the same. The increase of difficulty being only in the application. We will consider, first, a case where the pulp has been removed by devitalization. The condition here will be simply an open canal at the apex of which will be a minute unhealed surface, corresponding in size with the apical foramen where the line of demarcation was set up and the slough finally took place.

Now, gentlemen, what does this condition require for its proper treatment? I would answer by saying, two things: First, that the septic influence be removed from the stump of the pulp, or rather the unhealed surface at the apex of the canal. Second, that it be covered by some impervious substance placed immediately in contact with it. Neither of these alone is sufficient, but both together are an absolute guarantee of success no matter how they are obtained. These being all that is required, it is obvious that the sooner they are obtained the better. The man who treats a root six weeks before filling will be successful if he obtains these conditions at the end of his treatment, and the man who fills it immediately will also be successful and have this advantage that he has shut the door to his foes immediately and has done it when everything was in his favor. In a word, he has acted at a time when he has nothing to gain and everything to lose, as, at the best, after any treatment, he can only have the conditions which he already had at the start, *it is impossible for this tract to heal;* it can only be closed by a growth of the cementum which takes place, making a mechanical closure, and this not only requires some little time but perfect immunity from disturbances. In cases where the pulp has simply been torn out, either with a broach or other means, the condition is the same except, perhaps, less congestion at the apex, and, therefore, the proper conditions are more easily obtained.

Let us next consider a case which we often meet—one where the pulp has been dead for some time, but is not giving trouble. These cases, I think, we all approach in the same manner we would a powder magazine, and with good reason as so many can testify. Let us see what the conditions are. The canal is filled with most intensely poisonous matter. The apex is either closed by the growth of the cementum or protected in some manner from the effect of this matter, depending largely on the length of time since the death of the pulp. It is apparent that to render the condition here the same as that in the first case, we have simply to clean the canal without forcing any of the septic matter contained therein through the apical foramen; or if the foramen be closed, without opening it. Easier said than done is the reply. I think if we are always careful to have the rubber dam in place and see that the canal is kept flooded with some powerful antiseptic while the cleaning process is going on, at the same time using proper care to prevent penetration beyond the foramen, we will very seldom have to combat after-complications.

Our next case will be one which presents the well-known condition of blind abscess. In this we have the same, or nearly the same conditions as before, with the addition of an abscess at the apex caused by the septic matter contained in the canal penetrating the tissues beyond, and, in addition to the other condition mentioned we have this to remedy. How shall we do it? If an abscess of that size was situated in almost any other portion of the system, you would say evacuate it and then let it alone. Why not do that here? Simply evacuate, and, if you are not satisfied, pass a fine broach through the foramen and give it a good bleeding. The blood will wash out the sac, and, if it does not collapse of its own accord, will form a clot filling it—this, if protected, soon becoming organized quickly ends the trouble. The only thing to guard against particularly is in cases of long standing in which we are apt to find the root at the apex badly eaten away. If this is the case, nothing will save it unless we resort to replantation.

If the abscess opens on the gum it only simplifies matters in that case; by immediately closing the foramen you convert it into an open wound, which, if kept open with a tent for a few days, will close without further trouble.

You will observe, gentlemen, that I confine myself in the consideration of these cases strictly to treatment at the apical foramen and advocate only treatment by mechanical means, or, if I may be allowed to borrow a term from our homœopathic brethren, mechanical remedies. If you will bear in mind the proposition made in the beginning that but two things are required for success, first, removal of septic influences; second, obliteration of the canal at the apex. I think you will agree with me that only mechanical remedies are required, and that medication of any kind is entirely superfluous, and not only that, but pernicious, being misleading and having a tendency to draw the mind away from the main points at issue; also that the element of time, as a factor in the treatment, is of no value.

Of course I have in this paper only considered the simplest and most direct cases, yet these illustrate all the principles of the work. The more difficult cases are so, not because they require different remedies, but because of the added difficulties in applying the same ones. Believing that this covers the entire ground of root-filling, I will leave the matter for discussion.

STORAGE BATTERIES AND THEIR USE IN DENTISTRY.*

BY W. W. VANCE, D. D. S., LINCOLN, NEBRASKA.

I did not understand that your committee intended me to write anything about the manufacture or formation of storage batteries when they assigned the above topic to me; consequently I will omit anything in regard to the formation or principal electrical accumulators and go direct to the applications to the uses of dentists of the modern device of bottling up, so to speak, the mysterious fluid we call electricity, assuming that the storage battery selected is a good type furnished by some of the various firms engaged in constructing them for the market, after having studied the needs of the many users of light power, who, while requiring but a small amount of power, require that to be ready at all times during working hours and furnish a liberal supply with a minimum of care.

I will first mention the more important uses or requirements by the dentist for electricity. I consider the dental motor of primary value; next the laboratory motor for driving the grinding and polishing lathe; next after this the electric mallet, then the root canal dryer, the mouth lamp and warm air syringe or blower. As for the dental engine operated by electricity there are a number of forms, enough at any rate to satisfy the most fastidious; as for myself I prefer the motor, for general use, mounted on a bracket attached to the wall or window casing and having directly attached to it the S. S. White cable and sleeve and duplex spring and slip joint, for the reason, that a motor mounted in this way is out of the way when not in use and does not take up any floor space; is when properly adjusted as noiseless as the dental engine and easily brought into play when needed without unnecessarily alarming the patient.

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*Read before the Nebraska State Dental Society, May, 1892.

For special uses the Weber–Perry New Cord engine mounted on truck and supplied with about one-twelfth to one-eighth horse power motor like the arrangement of Dr. C. Edmund Kells, Jr., is the best thing I have seen; but the unnecessary elegance of the controlling device as manufactured by the S. S. White Dental Manufacturing Company make the price quite beyond a reasonable figure.

For the laboratory motor at least a one-eighth horse power motor should be supplied and may be either shunt or series wound. When operated by the incandescent electric light circuit a series wound machine is to be preferred, but for a battery circuit from a storage battery a shunt wound machine will give better results owing to the low potential of the current. For operating such an electric plant as above described by storage batteries, would require six to twelve cells owing to the make, as different makers and different types of cells give varying quantities of current.

The storage battery is the means that must be courted most by dentists for the reason that it is the few who are so fortunately located as to have access to a day circuit of a safe potential; but almost every city or town of any importance is nowadays provided with an arc lighting plant for street lighting, and it is the storage battery alone that makes it possible to avail ourselves of the current obtainable from this source for use at our convenience.

Of course the first cost of such an installation is considerably more than where direct connection can be made to a constant potential circuit: but there are several advantages that the accumulator installation has that more than counterbalance this and not the least of these is its absolute safety from shock if properly protected by switches or cutouts when not charging, but when the operation of charging is going on it should be disconnected from all devices, by switches, and especially such as are used about the chair if a fountain spittoon, steam, water or gas pipes or gas bracket are within reach of the chair.

Large installations are best charged from a constant potential (incandescent) circuit, but small installations, such as are used by dentists, are best charged from the constant current (arc) circuit. The reason for this seeming difference exists in the fact that as the cells or accumulators each have about two volts potential it follows that there will only be as much counter-electromotive force as there are cells multiplied by two, that is for twelve cells connected up in series, twenty-four volts. In large installations such as are used for auxiliary lighting or for street car propulsion a large number of cells are required, and this large number of cells, each giving two volts to the cell, gives a counter-electromotive force of a voltage approaching the voltage of an ordinary constant potential circuit used for incandescent lighting, consequently the full force of the charging current may safely be turned into the battery without danger of damaging the plates forming the cells, as the counter-electromotive force of the cells in series is sufficient to prevent an abnormally large current from passing, as it must be remembered that the charging current always should go into the battery in the opposite direction from the discharging current given off by the battery, and until the charging current has a voltage equal to and a little above the voltage of the battery no current will go into the battery, but in an installation of a small number of cells where the voltage of the battery is not close to 100 volts, the incandescent current, such as the Edison and similar circuits of about 110 volts, would charge too rapidly and ruin the battery by warping the plates, as it is the quantity of current that passes through the battery that does the harm; and while the voltage of the incandescent current is low as compared with the arc light circuit, the quantity is constant in the latter and many times less than the incandescent circuit, and while the voltage of the constant current (arc) circuit may vary according to the number of lights burning, and is usually from 1,500 to 3,000 volts, yet the quantity is practically unvarying, and is only about nine to twelve amperes; this being all there is of it, it can all pass through the battery without doing any harm, and the variation of voltage cuts no figure because the quantity is limited. These are briefly and sufficiently near exact, the reasons for using the arc circuit for charging small installations of accumulators.

I will now endeavor to point out some of the advantages of electricity for dentists use. We are apt to measure others by our own standard, and I beg your indulgence if I mention my reasons and point out difficulties which experience has proven to me to exist, but that were not so manifest until after I had learned by trial that better things and methods exist, than we have been using, and flattered ourselves were very good and rested content to use, until competition forces us to investigate and adopt better methods. In the first years of my practice I depended on the ordinary dental engine and considered it a great advance over the long handled burs and drills rotated between thumb and finger with the end of the handle resting in a bur thimble supported by a ring over one of the fingers and the socket in the palm of the hand; such methods were used by my preceptor when I first commenced the study of my profession, but that soon after, was discarded for the more modern method known as the dental engine. But finally I thought that even that instrument could be improved on and some of the disadvantages it possessed might be wholly or partly eradicated; among those disadvantages was the contortions we were obliged to get into in order to see our cavity and at the same time tread the engine; for you must remember that all did not have the extremely flexible Johnston spring at first: then a high speed was not obtainable without considerable effort. This caused unsteadiness of the hand. The engine was almost of necessity placed at the right of the patient and a little in front of the operator, a position many times awkward and unsatisfactory.

All of these things I readily saw could be eliminated by the use of an external application of power and especially if the motive power could be placed or brought to a position directly in front of the patient and made capable of an upward and a downward movement and also adjustable either to the right or left, sufficiently to accommodate the position of the operator's arm. The electric motor solved this problem directly and only had the disadvantage of needing intelligent and painstaking care of the battery. This care and attention needed for the battery, brought, by reason of occasional neglect and carelessness unreliable results, and sometimes the motor or mallet would not work. There then was a difficulty not looked for and soon brought the whole matter into dis-favor, not alone from those who met disappointment but by others who "suffer the ills they had rather than flee to others they knew not of" but had received descriptions of from their unfortunate brothers. The direct current when obtainable seemed to offer the best solution of this battery difficulty and for the laboratory use this is undoubtedly so yet; but for operations at the chair new difficulties arose, primary batteries were always of low potential and there was no difficulty from shock but not so with the dynamo current of 110 volts potential and upward, for they frequently and in practice are almost invariably more or less grounded, a fact which always rendered its use at the dental chair likely to give a slight shock to the patient if certain conditions chanced to exist; one of these was the use of a fountain spittoon attached to the chair and especially on damp days. Gas, water and steam pipes in such proximity of the chair as to be likely to be touched by the patient was another; all of these difficulties are avoided absolutely by the agency of the storage battery.

For operating the miniature lamps the hot air syringe and root canal dryer, while it is possible to do so with the direct current from the dynamo furnishing current for incandescent lighting and power, it is not the best, because the heat generated in the controlling device is too great to be conveniently disposed of except by converting the incandescent current into motion by means of a motor and this motion of power back into current of low potential and great quantity, by means of a properly constructed dynamo, either mounted on the same base with the motor or driven by it by means of a belt. Such a dynamo need not be larger than an ordinary 1-8 horse power motor and can be obtained from any manufacturer of motors; the type can be the same as the motor the difference being in the winding. The storage battery solves all of these difficulties, viz., no shock, for if ordinary care is taken there need be no "ground;" large quantity and low potential, as perfect control as the most exacting could possibly wish, and last but not least good and reliable service with a minimum amount of care.

It is not within the province of this paper to suggest any particular battery but my own observations along this line lead me to believe that we may expect some very excellent results in storage batteries and great improvements in the next year or two.

But if any of you are contemplating adopting electricity, my advice to you is not to wait; the extra expense incurred by any change in your battery will be more than made up for, by the good you obtain by early adoption.

A few suggestions from me may not be amiss in regard to your installation; locate your battery in a convenient and sufficiently light place so as to be easy of access and inspection. Look at it every day, and always before commencing to charge; see that the active material in the plates does not fall out and accumulate at the bottom of the cells so as to touch the plates; this would cause a short circuit, and injure the plates, also diminish the power of cells. Use well-insulated copper wire of not less than No. 15 B and S gauge, and No. 12, especially if the battery is located more than twelve or fifteen feet away from your appliances at the chair; the reason for this is that the quantity of your current should not be wasted in traversing an unnecessary length of wire, or the force or voltage of the current reduced by the high resistance of small wire external to the magnet coils of your motor or mallet; this loss is reduced toward the minimum just in proportion to the increase in size of the conducting wires leading from the battery to the motor.

A new battery, manufactured by the Donaldson-Macrae Electric Co., Baltimore, Md., comes as near fulfilling the requirements of the most exacting demands from dentists as anything I have investigated, and has some special claims not made for any other storage batteries I have had the privilege of investigating. Among these are the impossibility for the active material to fall out and accumulate at the bottom of the cells; impossibility for the plates to warp, and the fact that the amount of charge remaining in a cell at any particular time can be very nearly calculated by simply measuring the specific gravity of the fluid in the cells. They are put up in a convenient form, and have a capacity sufficiently large so that the least number of cells indicated in the earlier part of this paper will be amply sufficient to operate a one-eighth power motor, together with such other electrical apparatus as the dentist will require.

The Care of the Teeth During the Eruptive Period.*

By E. L. Clifford, D. D. S., Chicago, Ill.

"The most important function of the dentist is to so care for the development, growth and arrangement of the teeth as to preclude the necessity for restoration of parts of teeth or portions of sets. The highest attainment in any specialty of the healing art, is to so instruct the people that they will not require a remedy; that dentists should be entirely competent to prevent disease, more often than to treat it. Prevention should almost supersede what is now understood as practice."

Many of you will recognize in the above quotation, the spirit and the brains of our lamented Atkinson. The committee who arranged our programme, have no doubt appreciated the truthfulness and the importance of its meaning, when they suggested that during this year, some one should address you upon "The Care of the Teeth during the Eruptive Period." The subject by its peculiar wording appears self-limited, it would seem at a casual glance that the teeth, irrespective of other oral organs, alone commanded our attention. In the abstract, we possibly might admit such a statement, but looking forward to the future perfection of man's entire digestive apparatus, we are forced to count the teeth as but an integral part of the whole. No one part of the great organism of man is entirely independent of its neighbors, and it is to a forced appreciation of this fact that the specialty of dentistry stands upon the plane which it now occupies. Just so long as the practitioner could see nothing of interest in his calling, but the molecules of organic and inorganic matter commanding his immediate attention, just so long was our onward march stopped short of the goal of a professional existence, and its members detained within the scope of trades people, and even to-day, while reading our current journals, or listening to discussions and queries in our different societies we are often called upon to explain why it is that certain practitioners cannot command the respect of their patrons, and are grudgingly paid a small fee for a tedious and skillful operation, when they know that their neighbor across the hall, not gifted with more than ordinary ability, often receives, with gratitude, a handsome remuneration. It has been said more than once that dentistry is what the dentist makes it. With equal truth you can bring the thought very, very near home, aye, even to your own door, and be forced to realize that your own practice and clientage is just exactly what you make it. Just so long as you have no aspiration above the "Great American Eagle," and just so long as your capabilities will not allow you to rise above the mediocrity of a community, just so long will you seek the people instead of the people seeking you.

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* Read before the Odontographic Society of Chicago.

This may seem to many of you a queer prelude to a very practical subject, but I offer by way of apology that its extreme practicability suggests its importance. Many of you while revolving in your minds what probable points would be given prominence upon such a subject, and hence have reviewed the literature of the day, and conjoining that with your individual experiences, selected such parts as you wished to discuss, may feel a twinge of disappointment at the course I am about to pursue. I believe, however, that no matter in what direction such a topic is treated, these salient practical points are bound to evolve from the discussion, and hence, will leave them to be noticed, only provided time will permit.

Your text-books and your journals teem with the theories of the day upon this, as well as collateral themes, and I wish it was within my power to cull from the different writers the best and true conclusions. For I believe that "he who can best interpret the thoughts stored up in the dental literature of the past, teaches us to venerate and love the wisdom falling from the lips of its teachers. But he who teaches us the power to *profit* by the past and build upon its foundations intelligently, leads us from the wilderness of doubtful procedure to the promised land of higher attainments." Now all men cannot occupy this position, this prominence. The admitted inequalities of all things, both natural and unnatural, but prove the power of individualism, and no enviable individuality is attained without its measure of self-sacrifice. The inequality of man, from birth unto death, forces us to recognize the necessity and the power of the education. The possession of a liberal education takes a man from the ranks of a private and raises him to the sphere of an officer, one who is to command and to lead, and, as was stated in one of our daily papers not long since, while this measure of self-sacrifice should not be extreme a vast amount is absolutely necessary. A sufficient quantity to establish, beyond dispute, a marked individuality, to give power to its possessor without detriment to his nature, and without culminating in notable offensiveness; for self-sacrifice is not always a virtue. "A certain amount of bearing meekly what others give, and a certain tax upon our otherwise leisure hours is beautiful, it is a virtue; Beyond this it is a sin against individuality, a wrong to oneself. Science to-day can tell the precise melting point of all the metals, a point at which they can no longer bear the heat. The individual should have his melting point, beyond which his justice to himself should assert itself. Bear quietly as long as it is just, then there is but one step, "rebellion." "If this individuality is not recognized in its duties to itself, man not only suffers, but he weakens the means by which he can do good to his fellows."

Another point which suggests itself at this time is that one must not only act, but think. We fail in our duty to our individuality when we have our thinking done for us by proxy. The pressure of modern civilization has developed this to an alarming degree. To-day is the "Canned Food Age." Our opinions are formulated for us, our views on political, social and professional questions are condensed and put in "Extract" form by our favorite paper or journal. Boston issues its bulletins of the literary god to be worshiped for the season, as London decrees the cut of our clothes. Shall New York, shall Boston, shall Philadelphia, Ann Arbor or Chicago issue the fiat of professional dictum? And when issued, shall the progressive student of our time, of the "Columbian Period," acquiesce quietly to its mandate. No, "let us pluck the peach from the tree where it has been growing, not from the can where it has been packed." "The costly menu of our schools should be cut down to as few studies as possible, consistent with the scope of the demands upon our capacities and good solid trained thinking appear constantly upon the table as a relish. Life is not a game of checkers, where every man has the same fixed powers, and the same even lines of moves, it is a game of chess, where every piece has individual characteristics, where every pawn has a chance to be queen, where the powers and possibilities of each piece change with every move, or change off square, influenced by past, present, and future." The art of the professor is not only to instruct his class in the fundamental truths of his subject, but to infuse them with a spirit of investigation, and to make his pupils feel that they must learn to think and act for themselves.

You are all aware that within the past very few years there has been a rustling and a rattling, as of dry bones, indicative of a change of thought, an evolution of sentiment, amounting to a tacit demand, that is a sure premonition of forward movements all along the line of preparation to meet the duties now facing an aspirant for fame and ease within the specialty of dentistry.

The several State legislatures, one after another, have enacted such laws as in their wisdom they deemed necessary for the better protection of the practitioner and the laity. Taken in a broad and liberal sense, this could not be looked upon as a "class legislation," for such acts redound more to the common conservation of health and comfort of all the people than to the financial success of the specialist. And now while there is a vast amount of difference between a practitioner and a teacher, and while it is positively true that because a man is a practitioner, he is not necessarily a teacher, that is, a teacher for the professional student, he should be, and in order to attain that position and degree of success suggested thus far in this paper, he must be a teacher for that portion of the public which, perchance, may fall under his direction.

Now then let us attempt to make a practicable application. How soon shall this instruction be begun? I was just on the point of saying, "certainly with the children," but reflection prompts the thought that the intelligent and competent director would fall far short of his duties should he wait until the neglect or ignorance of the parents had visited upon their offspring an heritance that would place at naught the quotation with which I commenced this paper. I am aware, however, that in confining myself strictly to the subject you have selected for me, I should far overreach the bounds should I presume to tax your patience with the physiological laws as we now understand them, of intrauterine life as they pertain to, or affect the dental organs. Recognizing, however, as we are bounden, the utter dependence of each and every organ upon a proper start in life, and a subsequent surrounding of proper elements for a proper assimilation, it is almost impossible to resist the temptation of a hurried scanning of this field. Children are certainly what their parents make them, and this is equally true of each and every part of that organism. No organ in man's entire composition is more subject to the results of pathology than the antechamber to this most important digestive apparatus, and close observation has so often proven that the teeth of the child will certainly partake of the peculiarities of one or both of its parents, that the point cannot be ignored.

Civilization and the conventionalities of modern society also twist and bend into a pathological shape this branch of what should be a perfect tree. Hence we cannot commence too soon to instruct the parents that much depends upon them as to the result. Proper hygienic surroundings and conditions, not only of their entire bodies, but especially of their own dental organs must be enforced. As the embryo is nourished from the blood, the blood must be in a perfect normal condition to produce normal results. This cannot be if the mouth of the mother is in such a condition as to vitiate every bolus of food forwarded to the stomach with the poisons you and I know to exist within that cavity, filled with loose, decayed or otherwise diseased teeth, which of course means a pathological condition of every secretion from the mouth downward. Nor can it be if the dental organs, being in this condition prevent the proper mastication of proper food thereby entailing upon the stomach the necessity of a double and unnatural function, that of masticating, as well as digesting whatever food is provided. And, also, while I know the literature of our specialty will not bear me out altogether in the statement, that good dental organs can be made by assisting nature in supplying such deficiencies as are known to exist in the daily food, with such medicaments as contain these elements. I am willing to be placed upon record as stating that they can at least be improved sometimes to a remarkable extent, and my observation and experience justify me in the statement.

I will be pardoned for making the assertion that the Anglo-Saxon race must produce, what it does not now produce, a physique and brain capable of meeting successfully the demands that our climate and civilization make upon it: This can be done by bringing up the tone of the American women so that the conformation shall be what it should be for the best propagation of the species, and that she shall have, what she has not to-day, the ability to furnish a suitable supply of wholesome nutriment for her offspring, as is the case with German, English, Scotch, and Irish women. To-day the vital temperament is too predominant and too active, so much so as to require an undue proportion of the nourishment of the body. Nothing is more certain than that the physical development of most of our American women differ very materially from the physiological standard upon which the true law of increase is based. Where does the true remedy for this condition of affairs lie? Certainly within the sphere of the intelligent practitioner of *all branches* of the healing art and it is to the subject of diet, fresh air, sleep and tranquility of life of the young of the present generation, and to the general training of the young in educational institutions that we must look for the better production of a better type of physical and mental stamina. No doubt but that the influence of physical culture, especially applied to women, and its influence on the body cannot be overrated, and that by due attention to this we shall see our young women graduate with health, good muscular development, and an abundance of vitality stored up for the trying duties of maternity, and with the greatest possible harmony of action between the physical and mental organization, tending to good healthy progeny. At present the average number of children to each American family is steadily decreasing with each generation, and the children that are born exhibit a want of vitality, a want of stamina in the constitution, and such a predominant tendency to physical degeneracy as threaten seriously, it would seem, the perpetuity of our native stock.

The pathology of the production of defective dental organs does not differ so materially from that which produces other abnormalities, but it consists primarily, in an interference with the proper nutrition of the nervous and osseous structure, so that even during embryonic life, the brain undergoes pathological changes, which induce deficient moral power, mental weakness and a predisposition to the acquisition of all forms of nervous diseases, and this conjoined with a recognized defective osseous inheritance, certainly tends to an ill-balanced and imperfect result. Had all physiological laws been strictly adhered to, the result would certainly have been different, interference would be unnecessary, and the philanthropist of the medical profession would be seeking other fields of labor in which to reap rewards. Such has not been the case, we cannot change in a moment the results of years of misdirection, and hence it becomes the duty and the life study of him who would reëstablish this ideal physiological state to so prepare himself by study and observation as to teach, upon scientific principles, those who seek his professional advice. And such not being the case, it is his duty to search among the great kingdoms of nature for such elements, and prepare and introduce them in such form and shape as will be acceptable and efficient to supply the deficiency. Chemistry teaches us what elements are deficient in these known conditions; why should not chemistry furnish us with the elements to supply the demand? Certainly this science has thrown open wide the field of investigation and is daily furnishing an astonishing amount of pabulum for our nutrition. Place the mother under proper hygienic regime, and with a proper supply of air, food and sleep, assisted by such medicaments as will prevent any interference with the tranquility suggested, and the patient of the future will have but little use for the dental practitioner compared with the enormous amount of demand upon his hands to-day.

But it may be questioned by some, is it within the sphere of the specialty of dentistry to invade this field of therapeutics? Are we not infringing upon the rights of our brothers who claim the whole field of general medicine? Fellow students, the day of the general practitioner, in metropolitan locations, where the acme of professional skill and experience is expected, are numbered. Specialism, true and scientific, is knocking so hard at the threshold, that its demands can no longer be ignored. And the day is not far distant when the properly prepared and competent practitioner who has selected as his field the dental organs, will be expected to meet every demand upon his capacity that is necessary to restore physiological function within his realm. Are we not progressing? If there should be a man among us who would like to have the capacity of his astonishment put to a severe test, let him but compare the status of our scientific knowledge to-day with that of only ten years ago. And still in the face of such a statement you will find many who will shrug their shoulders at internal medicine and therapeutics. Indeed laymen, and some in the profession who ought to be laymen, punish them with contempt. Why is this? First, because they have no knowledge of the effect of medicines, of the morbid processes requiring, and the intellectual work of the practitioner controlling them, and, secondly, because they can but foresee the demands of a future which will require, not only more work upon each individual presuming to administer to the ailments of suffering humanity, but more capacity to appreciate and understand the intricacies of so deep a science as his chosen vocation has attained. Particularly would I lay stress upon this lack of knowledge of intellectual work. It is not the fault of internal medicine that there are too few experts. It is its complication and difficulty that demands ripe years, hard work, and a keen and powerful intellect before the great physician is made.

In the realms of surgery it is fortunate for mankind that at least modern operative surgery, as based upon the advance of pharmacology, has become an art, and the success of most operations depends upon a few well understood facts and methods easily attainable by an average capacity. The impression which has obtained in the past that the specialty of dentistry belonged more properly to the domain of surgery than that of medicine (said impression we acknowledge being based more or less upon fact) has very easily rendered the foregoing remark extremely applicable to our calling. The future, however, means progress; everything points to that end, and everything suggests to the careful observer that only the progressive will survive. Such being the case, shall we consent to being bound down by the chains of ignorance, or of any dogma that would hold us root and branch outside of a sphere of usefulness to which our general intelligence and superior manipulative ability, combined with the proper ambition and preparation, should lead us? I think not. Then after having paid due attention to the progenitors of our future patients, let us commence with the child as early as its first year, and henceforth have it under our immediate care and supervision; of course, at this period of life, we will act principally as instructors or teachers, and it is absolutely necessary that we invoke the jealous interest and assistance of the mother. She must of necessity be the practical dentist for almost the entire period of first dentition. But if we can succeed by our superior knowledge and affable manner in gaining her entire confidence we will have but little trouble in awakening a sufficient amount of interest to have our instructions implicitly followed.

One of the first toys to be placed in a childs hands may very appropriately be a small soft tooth brush, and while at this tender age objections may very reasonably arise to the use of a powder, some mild, pleasant and harmless dentilave will prove beneficial. First impressions we all know are extremely lasting, and by thus early impressing the young mind, and in cultivating habits of cleanliness, the practice becomes in a short time but second nature and is apt to be followed through life. These regular visits to the dentist, visits commenced so early that the first will not necessarily result in extraction or lancing, and will not be preceded by days and nights of torture, periods of time in which the thoughtless nurse or playmates never fail to impart to the mind of the little sufferer full details of their previous experience with the terrible dentist, but when there is so little to do that the little patient will learn for itself, and the operator have a chance to cultivate its love and confidence. As is well known to the experienced, regularity of position is the rule, and not the exception with the deciduous teeth, so that in the field of orthodontia services are seldom if ever required, but it is also well known that there is no more important factor in procuring a perfect arrangement of the permanent teeth than a healthy condition of the oral cavity during the period of eruption. The too early extraction, or the too long retained deciduous tooth certainly produces effects in this direction that cannot be denied, nor is the loss, or retention, of these organs, the only point to be noticed. During this period of life it is absolutely essential that all the functions be well performed. Should a tendency to decay develop, or be inherited, it is the duty of the family dentist to interfere and correct as far as possible the shortcomings of nature.

Good mastication cannot be performed on decayed or diseased teeth, a good healthy bolus of food cannot result from such contact, and good nutritive blood cannot follow such contamination. Hence all cavities should be filled, all teeth retained within the jaws that can possible be retained, until such time as nature in her wisdom decrees their removal. Should it prove impossible, or impracticable to follow out the line of duty herein indicated, then the good judgment, skill, tact and education of the dentist is tested to do the next best thing that can be done. Always keeping in view the importance of perfect oral hygiene, and services should be rendered as will most easily and most surely accomplish this result. Here the food, diet and surroundings of the child play no small part. The mother should be instructed that good solid and nutritious food administered at regular intervals, is essential, that an abundance of pure air is requisite, and that plenty of exercise, congenial company and tranquil sleep are factors that cannot be ignored. The habit of indulging children in the delicacies of our civilized markets should be discouraged to a great extent, not that we would deprive the little ones in toto, their candies and their fruits, but that we should direct that the hours for their indulgencies should be such as not to find the stomach in an engorged condition at meal time, and hence prevent the child from partaking of that which would redound to the promotion of a perfect physiological result.

I do not realize that it is within the scope of this paper to dwell upon the manner of performiug each individual operation that might present to the average practitioner during this period of life, nor do I feel called upon to furnish prescriptions or lay down arbitrary rules for the host of pathological conditions that might present any day. As I have stated I look to the discussion to draw out a great many of the points here hinted at, and hence will be sufficiently charitable to tax you no longer.

TREATMENT OF DECIDUOUS TEETH AND FIRST PERMANENT MOLAR.*

BY D. M. GALLIE, D. D. S., CHICAGO, ILL.

I cannot offer as an apology for the brevity of this paper that I had forgotten that I was to present one this evening. Instead have been very conscious of the fact for the past six months, but with all this time at my disposal, I have failed to write and present to you a paper that sparkles with any new thoughts or methods in the treatment of this branch of dentistry. It is not my intention to go back to the parent or grandparent for the treatment of these teeth, as some advocate, but will commence with the child, at the time of the eruption of the temporary teeth.

Perhaps a few of you will consider this a little premature, but as dentists I believe we should possess sufficient knowledge and skill to treat this condition as successfully as the ordinary medical practitioner. Tradition furnishes us with a few amusing superstitions in reference to the cutting of these teeth. One is that the women of Brittany would not touch their children's gums lest their teeth grow crooked. It would be a great comfort to the mothers and children of this age if a few of our medical brothers possessed a little of the Brittany woman's superstition.

Instead, a great many of them believe in plunging the lancet into every little unfortunate's gums that shows signs of an erupting tooth. The use of the lancet is a necessity in some cases, for instance, when we find the gums badly inflamed and tumid, parts engorged with thick, black blood, in such a case an incision into the gums will give relief; but usually, if the parent is instructed how to care for and nurse the child at this period, there will be little need for the wholesale use of the lance. Still, we find children, when dentition is delayed, causing much trouble; in such cases other treatment than proper nutrition, cleanliness, warmth, etc., is necessary; the child's general condition requires attention; errors in feeding and nursing should be corrected, and the child given constitutional treatment. Cod liver oil, in small doses, or the syrup of hypophosphites of lime and soda, are good remedies in such cases. If the child is sufficiently advanced in age, food rich in phosphate of lime or other phosphate salts; such as oatmeal and graham bread in combination with milk. The parent or nurse should now be instructed to wash daily the child's mouth, rubbing the gums with some soft fabric, and when sufficient teeth have erupted commence using a fine soft brush. A good wash for this purpose is boracic acid, listerine, glycerine and distilled water. If this treatment is continued the little one will look as eagerly for its mouth wash as it will its regular bath.

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* Read before the Chicago Dental Society.

Unfortunately, most children do not receive this care; in consequence their teeth begin to break down and no attention is paid to them, until their cries remind the parents that a dentist should be consulted, and the child is inveigled into the dental office by all the threats and promises that a mother can command.

The work for the operator is neither pleasant nor remunerative. I suppose it has been the experience of a good many of you to coax an hour and work ten minutes.

The first thing the dentist should strive for is the child's confidence. If there is an aching tooth, allay the pain. If small cavities are present, fill them first, for if the first operation is accompanied with little pain the child will submit to harder treatment at the second sitting.

As a filling material I use amalgam wherever possible, on account of durability, but in cases where retention is difficult to obtain, tooth structure very sensitive, and patient nervous, I use a quick setting cement. Oftentimes, when two proximal cavities face each other, walls of each so frail that they will not hold a filling separately, I use gutta-percha, inserting it as one filling. This method I find very satisfactory, and easily accomplished.

In cases where capping is necessary, I clean out the cavity as well as case will permit; wash out, dry and medicate as condition calls for, and then take a small piece of court plaster, dampen sticky side and place over pulp ; if pulp is exposed, I cut a hole through one piece sufficiently large to clear exposure, and after placing into place, cover with a second piece, thus making a cap that will neither move or cause pressure when cement is flowed over it.

There are still two difficult obstacles to overcome in the treating of these teeth, namely, devitalizing and treatment of abscess. For the former I use a 95 per cent solution of carbolic acid; after applying two or three times the pulp is sufficiently mummified to extract. After removal I treat and fill in the same manner as I would a permanent tooth. I have always been afraid to use arsenic for devitalizing these teeth on account of it being so diffusible, thus endangering the permanent tooth and surrounding parts.

In the case of abscess, prolonged treatment is not advisable. Usually two or three treatments is all that is necessary. When ready to fill I medicate canals well, and fill pulp chambers with gutta-percha, leaving the canals empty. Another excellent filling for this purpose is paraffine; over this, insert the crown filling.

We now come to the last chapter in the history of the deciduous teeth, their removal, and with this operation it is necessary to use the greatest care and best judgment that we can command. Many future patients have been lost by the deception adopted in the removing of these teeth, and many cases of irregularities have been caused by the ignorant operators not understanding the relation of the two sets of teeth.

It is not possible for me to give any rule for the extraction of the different teeth of this set, as different cases warrant different treatment and action.

About the time that a number of these temporary teeth are in filthy and diseased condition there appears in the mouth a tooth that is more abused and neglected than any other that mankind is given. Namely the first permanent molar.

Developing at a time when the child is subject to all the diseases of childhood, it is naturally weakened, forced through the gums amidst filthy and diseased surroundings, the first permanent molar finds it hard work to thrive against such disadvantages.

This, coupled with the ignorance of parents in considering it a temporary tooth, leaves it to the ravages of decay which usually advance so far before a dentist is consulted, that extraction is oftentimes warrantable.

If parents could only be informed as to the time of the eruption of these teeth, and seek the advice of a skillful dentist in time, we would meet with fewer cases of protruding front teeth, close bite and other oral deformities caused by its early extraction. Now the question is, should we extract this tooth and when should we do it? My belief is, that a small per cent of cases warrant the extraction of the first permanent molar.

When necessary a little before the eruption of the twelfth year molar is the time to do it.

In mouths, when two of the four are decayed and situated on opposite sides and in opposite jaws, showing signs of poor tooth structure or the teeth in a crowded condition, I would extract the four. In mouths, when one is hopelessly decayed beyond repair in any manner, I would extract its opposite fellow, and I would leave the two in the opposite jaw alone, if in good condition.

Now, what conditions do we find from the premature extraction of the first molar. Removed at a time when there is not sufficient grinding surface in the mouth, the force of mastication is thrown upon the anterior teeth, with the result, that we have a heavy or abnormal growth at this point, the lower incisors striking heavy against the upper ones, forcing them forward; as age advances we find this condition growing worse, and at the age of twenty-five the lower incisors will usually be striking into the tissue of the upper jaw; the only remedy, then, is to open the bite.

On the other hand, if left in until the second molar has erupted and in some, if removed a little before its eruption, we are not certain that the space will be filled in by the second molar coming forward, instead we have so frequently the second bicuspid tipping backward and the second molar forward, forming a triangular shaped space for the retention and decomposition of food, besides the loss of masticating surface.

With the certainty of changing the expression of the face, the position of the teeth in the arch, and the loss of masticating surface by the early extraction of these teeth, and the uncertainty of having the spaces filled in and proper articulation by leaving them in until about the time of the eruption of the second molar, leads me to believe that we should save every first molar in mouths where there is room for it, and where it has not decayed beyond repair either by filling or crowning. If strong enough to fill, cut away well all frail walls, and build up as much grinding surface as tooth will permit. If such a filling will save the tooth until after the eruption of the second molar, and then shows signs of failure, we still have good roots for the artificial crown.

OPERATIVE DENTISTRY.*

By Hugh McNeil, D. D. S., Chicago, Ill.

I do not expect in this short paper to advance any new or original idea on operative dentistry. But as we have not yet reached the climax in efficiency and skill in this branch of our profession it is the privilege of each of us to study how we can best improve and advance perfectionward.

The principal thought which I wish to advance to-night is that the union which has heretofore existed and still largely exists between operative and mechanical dentistry should be forever dissolved, wherever and whenever it is practical to do so.

In no other calling or line of work requiring the same skill and delicacy of manipulation as that required in operative dentistry is there such a vast difference in the grade of work as that existing between operative and mechanical dentistry. Truly the hand is dextrously made. There is scarcely a limit to its uses by careful and systematic training. But without that training its scope of usefulness is limited, and particularly so in proportion as the operation requires delicacy of touch and skill in its performance.

The man who handles the crow bar, sledge hammer or such like ten hours a day, would not as a rule be the man we would call on if we wanted an expert performer on the piano. Much less need we expect that a man who spends two or three hours with his files, scrapers, etc., on a rubber plate, can wash his hands, take a nervous patient into his chair, and with his broach use that steadiness of motion and delicacy of touch in exploring for an exposed pulp that would at once secure for him the confidence of his patient, and insure for her the minimum amount of pain. In either case the heavier and coarser work benumbs and paralyzes the finer muscles, the fingers become stiffened, the skin on hands and fingers becomes calloused and thickened, the fine nerve fibers in the ends of the fingers which gives to us that soft and delicate touch, so essential to the operative dentist, become deep imbedded beneath this thickened cuticle, so that the only guide he has to tell him when he has found that delicate spot and ran his broach a quarter of an inch into the horn of a live pulp is when the patient jumps and writhes under this torture, which action, although he was unconsciously waiting for it he is very ready to censure. I claim that a man whose hands are thus impaired by improper care and training is unfit to take an instrument and probe into the tooth of a living patient. What would you think of a dentist operating in the mouth of his patient with his gloves on? The delicacy of touch is alike impaired whether the covering of the fingers be of goatskin, dogskin, or the thickened cuticle of the human skin.

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*Read before Hayden Dental Society.

What qualities would you expect to find in a successful operative dentist? Let me name a few. First and most important, he should be able to fill and extract teeth without pain to the patient. To do that he must have full and complete control over his own nerves and muscles, and convince his patient that he has the utmost confidence in his own ability and skill. This will diminish the patient's fear, and increase her confidence in him, which is the best obtunder of pain in the world.

2d. He should be gentle, and in a degree sympathetic, convincing his patient that she will receive the best of care and most gentle treatment, while the operation must be thorough.

3d. He should be gentlemanly, and cleanly in his habits. His instruments and hands should be scrupulously clean. His personal appearance, as well as that of his office, should receive his careful attention.

Many other qualifications could be mentioned, but those named include much that is essential to a successful operative dentist, and I mention those particularly because by comparison and study you will notice that much time spent in the laboratory where most of our mechanical work is performed, would tend to destroy instead of cultivate those desirable qualities.

I welcome the day when more of our dentists will see it to their advantage to take as a specialty that line of work that is most suited to their tastes, make a particular study of it, know all there is in it, fit and train themselves for it, in short make a success of it, instead of bungling away at everything that comes along, grasping everything for fear some one else will get something to do, and as a result make a success of nothing. This is not a new experiment. It has been tried and proved a success in other professions and lines of business. I admit that in the smaller towns where we find but one or two dentists, it would be impracticable, but in the larger towns and cities I think such a rule would tend to give better service to our patients, reduce the popularity of the "general store" business of the quack dentist, elevate the profession and be a general advantage to ourselves financially and otherwise.

EXPANSION OF THE DENTAL ARCH.*

BY C. S. CASE, D. D. S., M. D., Chicago, Ill.

At the December meeting of the Chicago Dental Society Dr. A. E. Matteson read a paper entitled "Practical Regulation of Teeth," in which he expressed himself relative to regulating "plates" as follows: "Plates made of rubber and covering the roof of the mouth for correcting irregularities are an abomination, a delusion and a snare. I can conceive of no irregularity that cannot be more comfortable corrected, both for patient and operator, by other means."

In opening the discussion I said in reference to this particular branch of his subject in substance, as follows: That while I had for years been opposed to the use of plates for the general purpose of correcting irregularities of the teeth—preferring by far the use of regulating appliances permanently attached to bands cemented to the teeth themselves—there were instances in my practice when I found a plate eminently useful and applicable and one of those instances was where I wished to expand the arch by bodily bending outward the alveolus containing the posterior teeth, in which case I used the Coffin split plate.

I shall here take the liberty of quoting from the *Dental Review* a portion of the discussion which followed that had reference to the use of expanding plates with the view of again placing the subject clearly before this convention for the purpose of giving a more complete resumé of the subject than was than possible with a clearer definition of my position, illustrated by a recent case in practice. That portion of the discussion I refer to is as follows:

DR. G. NEWKIRK: I agree with Dr. Case that we have not altogether outgrown the necessity for the use of plates, and that occasionally we can get results from the use of the wire spring plate, though in my practice I do not use that as much as I do the

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* Read before the Chicago Dental Society.

Angle screw principle. Most dentists, I think, have an idea that the only way to use a Coffin "split" plate, so-called, is to make a plate covering the entire hard palate, then saw it in two; whereas it is entirely unnecessary unless you wish to bring force to bear on the whole alveolus and palate also. Where you simply wish to move the teeth, and perhaps only a short distance, run a narrow rim of wax along the teeth on either side, just sufficient to give body to the plate for the purpose intended, and then adjust your spring. This particular spring is taken out in the other part of the cast, and you can make the rim of rubber so narrow and light that it is not particularly in the way. It makes a much neater plate than to cover the whole arch and then saw it in two.

Dr. C. S. Case: The Coffin plate that I mentioned is cut in the middle, covering the entire roof of the mouth and also the posterior teeth, and extending down somewhat upon the gum on the outside. The purpose of that plate in my estimation and the reason why I use it, is for bending outward bodily the entire alveolar arch containing the teeth. I believe that is the real purpose for which the plate can be used and for no other, and I think there is no excuse in this day for making a plate similar to the one the gentleman has described on the board. It is not the Coffin regulating plate to begin with, and if one wishes to exert a force only upon individual teeth I would not advise using two pieces of rubber that cover portions of the gum and retain decomposing food and secretions. A much better way in my estimation is to band the teeth and rest a spring or screw directly upon them, and I further believe that when it is desirable to expand a high arch the ridge containing the teeth should be grasped on either side and held relatively firm by a plate covering them, and so constructed that force may be exerted upon the two halves, forcing them apart. These plates should be made so they can be worn with comfort all the time, and removed at will to be cleansed.

Dr. Newkirk: I wish to say that from eight to ten years' experience with that sort of plate, I am sure Dr. Case's notion is all wrong. There is no excuse for plastering all the teeth over with rubber. I think there is often good reason for having the plate removable. I have cases where it is worn only during the day; have one such case now which is progressing beautifully. As to the matter of cleanliness, it is cleaner than an extended plate which would cover over the teeth. It can be cleaned half a dozen times a day if necessary. I know from experience it works well and I can show by models what it has done and is doing, without any harm to the tissues about it.

Dr. C. S. Case: I wish to say that I do not believe the plate which Dr. Newkirk advocates is to be compared with the Coffin "plate" whatever. The forces are entirely different; the one being directed upon the teeth alone caused them to move through the process and the other upon the entire alveolus caused it and the contained teeth to bend outward. His plate is to be compared only to the Angle, or some system which exerts force only upon individual teeth, and we all know, or ought, that screw bars or springs attached permanently to bands around the teeth are far preferable to any form of plate when this force is required.

Dr. Newkirk: If I understood Dr. Case correctly, he said that the whole alveolus is expanded by the pressure of the plate upon the soft tissues. You do not spread the alveolus in any such way without danger of injury to the soft tissues. If you slowly, patiently move the teeth the alveolus will move itself. That is nature's process. You do not do it focibly by pushing on the gum tissue.

The particular point I wished to make was: The system which Dr. Newkirk had described should be compared, in its merits and usefulness only, to the more modern, and, in my opinion, far superior method of attaching the appliances permanently to bands cemented to the teeth. Because in both these methods the force is directed upon the teeth alone, whereas with the Coffin split plate properly constructed the force is directed mainly upon the palatal walls of the alveolar arch. Therefore the discussion in reference to the expanding plate he prefers can properly be, first, only on the question of whether it is preferable to employ this method to one which requires no plate at all.

In the one instance the force is applied through the medium of lateral plates which merely rest against and cover the lingual surfaces of the teeth and more or less of the adjoining gum tissue, beneath which food will be crowded at every meal to remain and decompose unless immediately removed and cleansed.

This is not possible when a jackscrew is used between these plates—which I believe is the common practice—nor is it carried into effect in most instances when it *is* possible, either by patient or operator, frequently enough to prevent more or less injury, on this account, to the teeth and adjoining tissues.

In the other instance the expanding appliances are attached permanently to the teeth and in such manner as to be worn from the beginning to the end of the operation with little or no pain or special discomfort to the patient, and permitting of perfect cleanliness and healthfulness of involved tissue.

Again, inasmuch as the force in both these instances is directed upon the teeth alone, there is more or less peridental inflammation with accompanying hypersensitiveness. This is not so material when the appliances are permanently attached, and do not require at any time a complete removal of the applied force, but it becomes a matter of considerable moment, to the patient at least, in the pain that is invariably produced by the readjustment of this form of plate after the force has been completely removed from the teeth, even so short a time as is required for cleansing; and especially when we consider the extra hyperesthetic condition induced by the decomposition of food, to say nothing of the very questionable practice of removing the plate during nights.

The principal objection which I have to this form of plate as compared to permanently attached appliances for expanding the arch is, that their instability does not permit the proper application, direction and management of force with anything like the same degree of perfection.

This, after all is the great argument in favor of the Angle or any other system which permits, by the very construction of the regulating appliances these important principles, and it presupposes the fact also—which unfortunately is far from the rule—that the appliances be not only constructed according to scientific principles, but that they be changed from time to time according to the needs and exigencies of the case, so that the force will always be under proper control and direction of the operator.

Now let us compare these two methods of expanding the arch to that which is accomplished by the use of the Coffin split plate. As a preface, I wish to be understood as preferring the Coffin method only in cases where the dome of the arch is high and its base somewhat contracted. And even then, especially with youthful patients I am not prepared to assert that it could not be expanded as well by other means properly applied.

With the first two methods: as the teeth are forced outward their movement is first resisted by the border of the buccul alveolar plate. At the same time an equal force, in proportion to the stability and resistance of the buccal plate, is exerted in an opposite direction at the roots of the moving teeth, with a tendency to tip the crowns outward instead of expanding the dome of the arch.

As the buccal plates are bent outward, as will always be the result if they are thin—with little or no retrogressive metamorphosis, they in turn are resisted by the interproximal alvelolar septi. If the attachment of this is sufficient to not be overcome by the applied force the lingual portion of the alveolar process will be drawn outward with certainly an expansion of the dome of the arch.

But this process must always be attended with the loosening of the teeth in their sockets and all those undesirable changes which result from direct pressure upon individual teeth; together with the following dangers: First: the liability of fracturing the buccal alveolar plate from its septal and other attachments—as has been done with the jackscrew. Second: the rapid bending outward of the buccal plate, followed by the lateral tipping of the crowns of the teeth with little or no change in the position of the palatal alveolus. This tendency will be influenced by the disproportionate thickness and rigidity of the palatal alveolus and the yielding quality of the buccal plate and septi, regulated always to a great extent by the manner in which the force is applied.

With a Coffin spit plate so constructed that it exactly fits and firmly grasps the entire lateral halves of the alveolus, with the contained bicuspid and molar teeth no such danger arises.

And if it be provided with a properly adjusted spring separating pressure in a young person's mouth having a high and contracted dome, the arch will be sufficiently expanded in from one to two months, while the teeth remain comparatively firm in their sockets, and the whole operation attended with no material gum or peridental inflammation. Because of this the plate can be removed and readjusted by the patient witnout pain, and the parts kept perfectly free from the influences of decomposing food. While the whole operation of expanding the arch, *per se*, will require little or no interference on the part of the operator.

Notwithstanding that we have been told by a very eminent disputant of this method that, "you do not spread the alveolus in any such way without danger of injury to the soft tissues," I am happy to reassert my position with a degree of perfect assurance, and to enforce it by the exhibition of models of a recent case in practice, with the statement of competent witnesses who examined the mouth after the plate had been worn for one month.

On November 23d (about one week before Dr. Matteson read his paper), I inserted a Coffin split plate (which I here present), in the mouth of Miss R. S., aet. fourteen. You will see by examining the model of the mouth, at that time, that the dome of the arch is rather high and contracted. (See Fig. 1.)

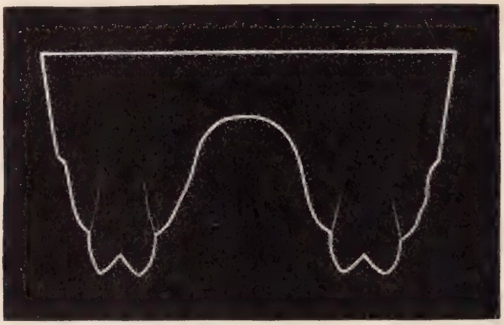

FIGURE 1.

I here present a second model made from an impression taken December 23d, which by comparison and measurement will show the alveolus expanded in the vicinity of the second bicuspids more than one-eighth of an inch. It will be found also that the entire dome of the arch is considerably broadened.

I will now call upon Drs. McCandless, Harlan, and Prothero—the gentlemen who examined the case at about the time this impression was taken—to state whether the teeth were materially loosened in their sockets, or the soft tissues inflamed or injured.

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By examining the plate you will see that it differs from the ordinary Coffin split plate in that it carries two springs instead of one. The second one passes from the buccal extensions around in front of the teeth, also the ends of the springs are not fastened by vulcanizing them into the rubber; my method being to draw tubes of German-silver or zinc to exactly fit the wire I determine to use. (Usually gold plated piano wire Nos. 10 and 12). These tubes are vulcanized into the plate in such positions as to properly receive and give a rigid bearing to the endings of the wire springs; by which method I am enabled to change the springs at any time they are found to be imperfect or their surfaces eroded. Instead of bending the wire in the usual form of a simple spring, I invariably add one or two coils, which facilitates separating the two halves when I wish to increase the pressure.

The labio-buccal spring is used when I desire a posterior expansion of the arch, with little or no change anteriorly.

ADDENDUM TO PAPER.

As it may be of interest to the society to follow the progress of this case from the beginning, relative to other changes, I will give you a brief description with the methods employed.

The models which I here present (see Figs. 2 and 3), are an exact representation of the relative positions of the teeth, at the beginning of the operation, during a masticating closure of the jaws—or one in which the lower jaw is carried as far back as possible.

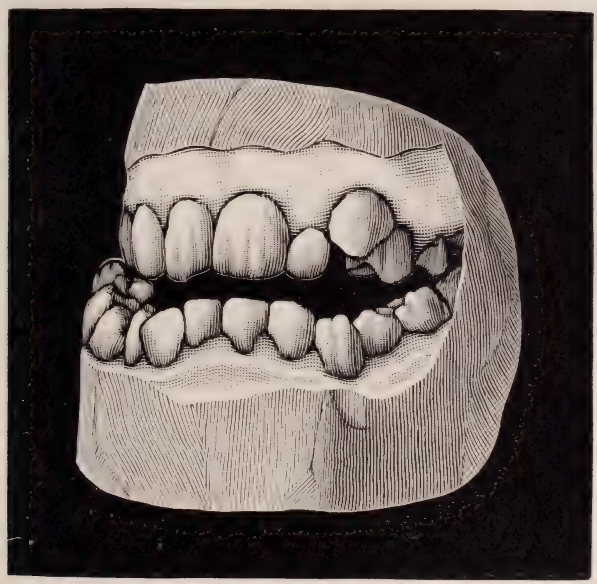

FIGURE 2.

It will be seen by this that the peculiar shape and closure of the lower jaw permitted only the posterior molar teeth to occlude.

Between the occluding surfaces of all the other teeth there was a space of from one-sixteenth to one-quarter of an inch. The alignment of the lower anterior teeth were far in front of the upper, so that the space was increased by the usual incisive movement of the jaw. In the act of biting off morsels of bread the thumb had always been used in place of the lower teeth.

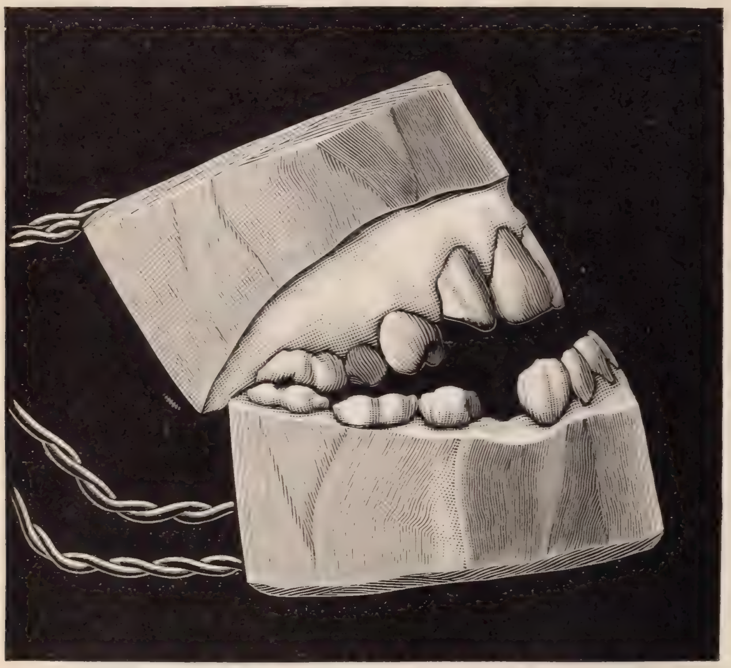

FIGURE 3.

With the jaws in this position I took a plaster impression of the face which I here present. (See Fig. 4.) This will be acknowledged by all who knew the patient before the operation as a model of the face in as perfect a pose as it was possible for her to assume.

I first removed the first inferior bicuspids and banded all the lower teeth. On the buccal surfaces of the molar bands I soldered long anchorage tubes, from which I extended a flattened bar or wire—(threaded at the ends for nuts)—around in front of the lower teeth, passing it beneath small hooks soldered to the outer surfaces of each one of the bands. This bar was supplied with small buttons soldered to its lower border, which were used ultimately for

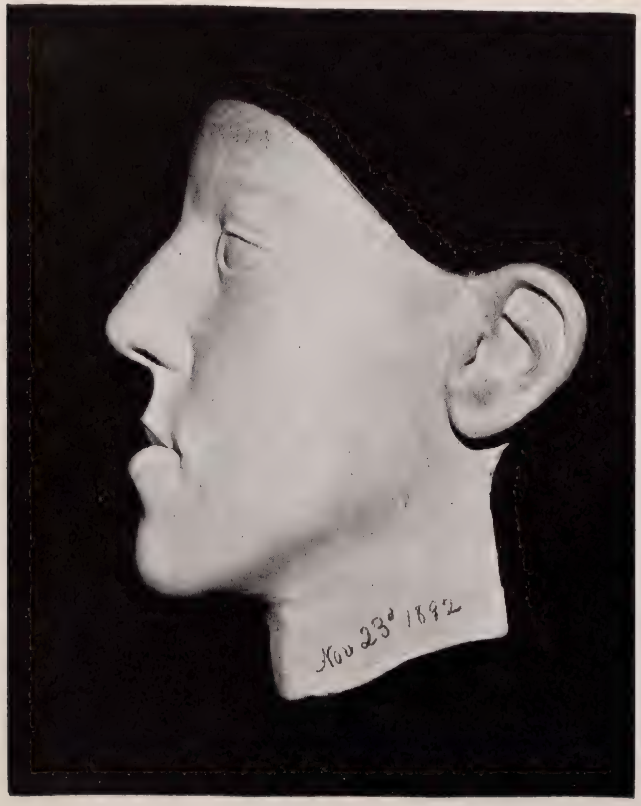

FIGURE 4.

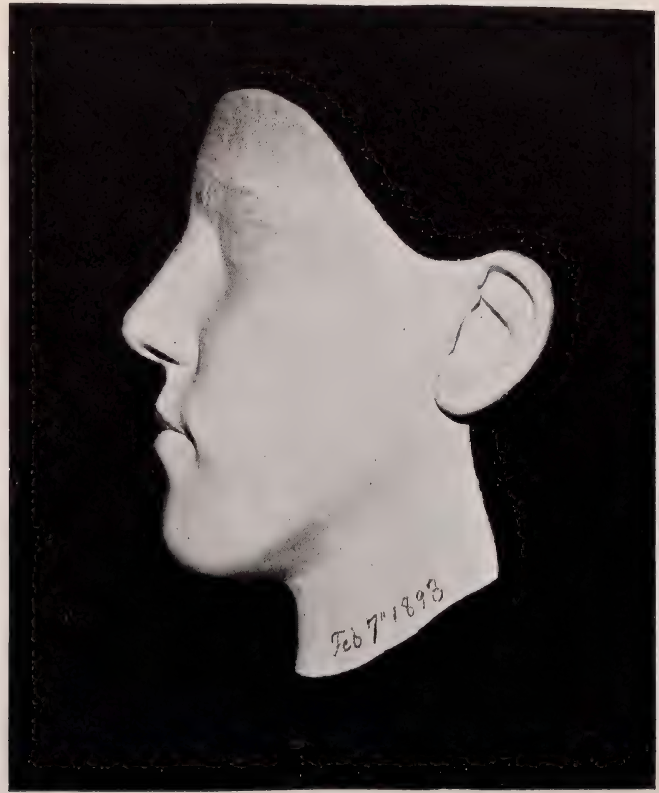

FIGURE 6.

the attachments of rubber bands extending to the upper, for the purpose of slowly lifting from their sockets all the unoccluded teeth—as I shall more fully explain later. Some of the teeth which required special extension carried extra hooks or buttons, while others were supplied with rotating tubes.

At the same time (November 23d), that this apparatus was attached to the lower, the expanding plate—which has been described in the paper—was fitted to the upper and the patient sent home with directions to her dentist to turn the nuts at the ends of the bar, and with explicit injunctions to remove and cleanse the plate and mouth after every meal.*

On December 24th, I removed the expanding plate and attached appliances to the upper for the further regulation of the teeth. All the upper teeth were banded and to the buccal surfaces of the posterior bands long anchorage tubes were soldered. From these tubes a flattened No. 18 gauge bar extended around in front of the teeth, made of very rigid German silver wire. This was threaded at the ends and used for the purpose of forcing the anterior teeth forward.

It will be noticed by examining the models of the upper that the incisor teeth already pitched forward considerably, leaving an unusual depression at the incisive fossæ which produced a lack of perfect contour of the face beneath the nose. My object therefore was to so apply the force that the cutting edges of the incisor teeth were held in position, while their roots and the labial alveolus was forced forward; principally for the purpose of bringing out a fuller and more perfect contour of the face.

This I accomplished in the following manner: The incisors were banded with wide well-fitted bands; to the anterior surfaces of which were soldered flattened bars that extended from the cutting edges of the crowns to a point somewhat above the margins of the gums where they ended in a hook that received the bar from the molar anchorage. Beneath the anchorage tubes, on each side was soldered a second shorter tube from which extended a thin narrow band that rested in fitted depressions cut in the lower ends of the upright incisor bars. To the ends of this band were attached threaded bars with nuts working at the posterior ends of the short tubes. By this simple contrivance it will be seen that the requisite force was properly distributed and the movement of the teeth perfectly controlled. A very important additional force, to this apparatus was obtained by the use of rubber bands, as follows: To the buccal surfaces of the most posterior extentions of the upper appliances were soldered large headed buttons from which extended rubber bands of considerable tension to similar buttons on the lower bar in the vicinity of the bicuspids. (See a. a. Fig. 5.)

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*If any person has the slightest impression that the models of the face and position of the teeth exaggerated the deformity in the smallest degree, I would respectfully refer them to Dr. R. E. Moon, Fulton, Illinois, who has had charge of the case and has known the patient for years.—[Afterthought by the Author.

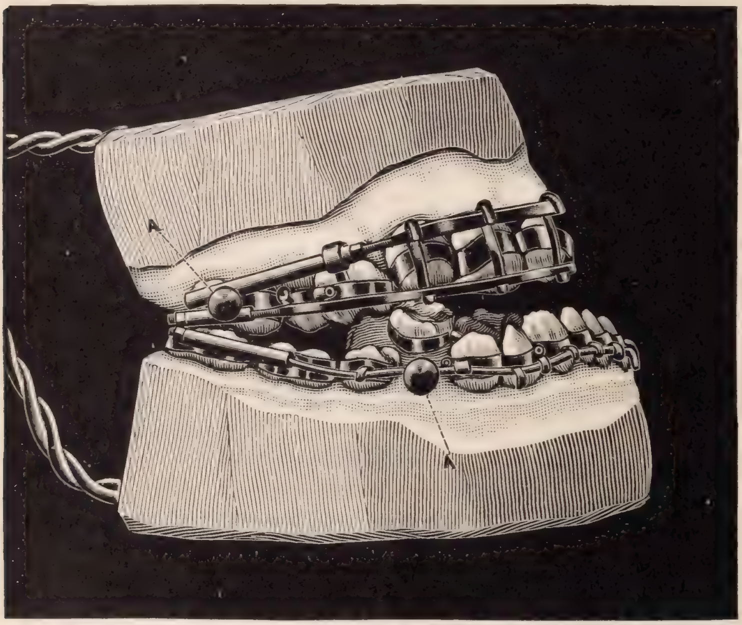


Figure 5.

The horizontal position of these bands prevented them from materially interfering with the movement of the jaws and therefore were worn continuously, greatly relieving the load upon the anchorages by reciprocating the opposing forces used on the anterior teeth. They also tended to lift the lower teeth to a more perfect occlusion. In connection with this, small rubber bands extended from the lower bar to superior teeth that were far out of occluding alignment.

These were removed by the patient during the process of mastication, but worn at all other times.

I here present the models with a similar apparatus attached to the teeth that was worn by the patient. The rubber bands are not attached but the buttons and hooks will show where they belong. (See Fig. 5.)

In examining the model of the face which was made at the beginning of the operation, notice the lack of proper fullness beneath the nose and the prominence of the lower lip, which gives the impression of a protrusion of the lower jaw. Now compare it with this model of the face from an impression taken yesterday. (See Fig. 6.) You will see a material change in this particular, due almost entitely to the peculiar change that has been brought about in the position of the anterior teeth and alveolus, which has pushed forward that portion of the face immediately beneath the nose and at the same time allowed the lower lip to fall back and assume a more natural and easy position.

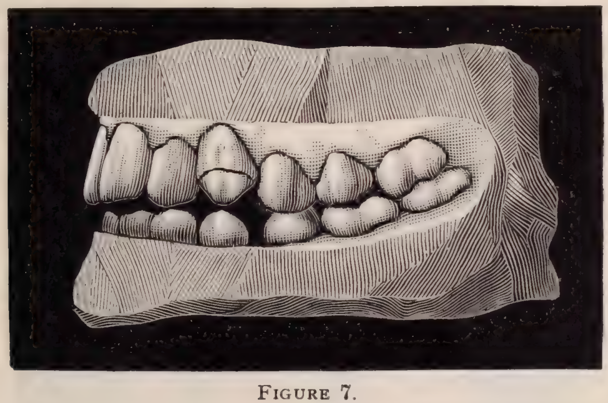


FIGURE 7.

The change in the position of the teeth that has at present been produced, will be seen by this model, (See Fig. 7.) which was made from a modeling compound "bite" taken to-day, the appliances having been temporarily removed.

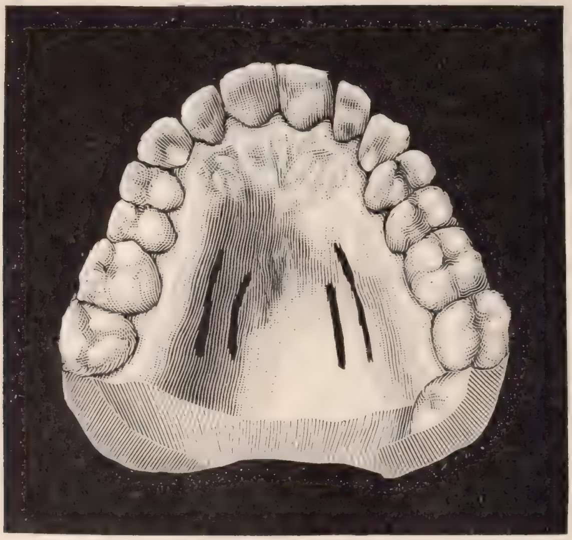
PROCEEDINGS OF SOCIETIES.

Chicago Dental Society.

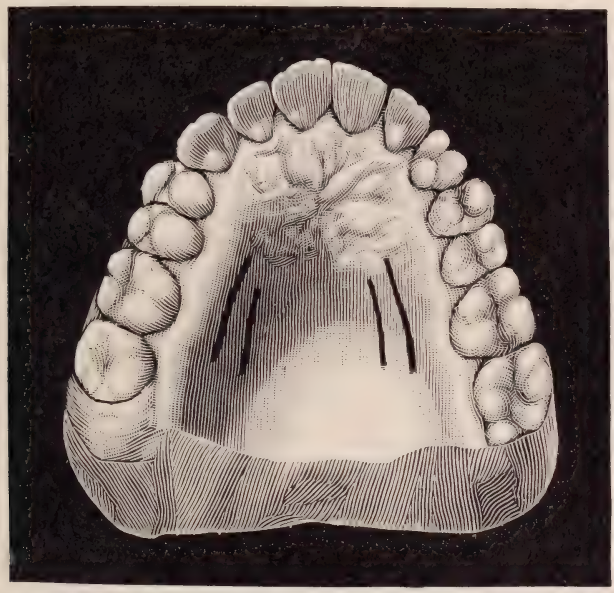
Regular meeting February 7, 1893, President Dr. J. W. Wassall in the chair.

Dr. C. S. Case read a paper entitled "Expansion of the Arch."

Dr. Garrett Newkirk (opening the discussion): Mr. President, I had no idea that my remarks at the December meeting of this society would stir up so much discussion. I did not suppose that I had made any such impression on anybody. In reference to the plate which I suggested, I specially said that I would use it only in certain few cases; that I did not use it as a general thing, preferring others. Later in the discussion the question came up as to principles involved in the expansion of the arch, as to what made the alveolus take a new position, and I expressed the conviction that I believed the principal force was that which was exercised on the teeth.



Now, I am not prepared to say that in a case where we have almost perpendicular palatal alveolar walls that some force may not be exerted without injury to the soft tissues; but in the majority of cases where we expand the arch we do not have such a marked condition as that. Generally you are exerting force not upon parallel walls, but upon an inclined plane. No matter what the form of plate, whether it be such as Dr. Case describes, covering the whole surface, soft and hard, or a narrow plate, the principal force is exerted upon the teeth. In the plate which he has passed around, the plate covers the *teeth;* it fits accurately upon the *teeth,* and the principal force which is exerted by the plate is *not upon the palate, but upon the teeth.* If some one will make a plate which rests only upon the palate and internal alveolar walls, not upon the teeth, I would like to see the result as to the expansion of the arch in such a case. I wish to say right here that the discussion of these subjects, as we have had them in the last year or two in our local societies and at the last meeting of our State society at Springfield, is very highly gratifying to me. It pleases me more than I can tell to know that so much interest has been excited in the matter of orthodontia. At a meeting of our State society at Springfield I was on the point several times of saying something on this subject, and congratulating Dr. Case upon the presentation of the models and the description of his cases. They were beautiful, but the time seemed to be occupied



by others, and I failed to get to my feet. It is gratifying indeed that we can have such an exhibition as we have had to-night and the description of these appliances.

I think about the same time that Dr. Case took his impression I took an impression of a case. I had an intimation a few days ago that "they are after me," and I thought I would bring my gun. November 21st this impression was taken, the teeth shutting quite within the lower arch. I made use in this case of a plate similar to the one described at the December meeting, pressing simply upon the teeth with a narrow rim of rubber and W spring. Sometimes the patient does not wear it nights. She takes it out when she eats her dinner, removes it at pleasure, and it gives no great discomfort. She went on with her school work, dancing, gymnasium, etc.

The impression which you now see was taken the 3d of February, a little over two months from the time the first one was taken, and she has been easy and comfortable in wearing the appliance. The expansion of the arch is evident. I have marked upon both models two lines, measured accurately from the gingival margins, to show how at the same time the alveolus has moved. There has been general expansion of the jaw in that length of time. I bring this forward to show that I am not altogether without grounds to stand on and without reason for the faith that is within me.

Dr. J. H. WOOLLEY: I would like to ask Dr. Case how long after the bicuspids were removed before he applied a regulating apparatus to bring forward the molars?

Dr. CASE: The regulating apparatus was attached to the lowers to force back the anterior teeth, not more than two or three days after the bicuspids were removed.

Dr. G. V. BLACK: I will say a word or two on this subject, although I would rather hear others talk than to talk myself on orthodontia. It is interesting and is becoming more and more interesting every day. It is becoming more important as we know more of it. We are finding out too that it is not the particular style of apparatus that we may use which gives success, but skill in the application of the apparatus. What we want is to use force, use it gently, and properly directed. If we direct the force properly the particular kind of apparatus may be materially changed and yet give us the force. I have been widening a number of arches recently. In some cases I have used the Coffin plate with jackscrews and widened rapidly; in others, I have widened slowly by other methods.

There is one point in what Dr. Case has said that I wish to refer to, that is, in regard to the buccal plates to the alveolar walls being sprung outward, the teeth leaving the lingual wall. When I come to examine the structure of the peridental membrane, I find we will have an enormous pull upon the palatal plate as well, because there is an attachment of the teeth to the alveolar wall by that membrane that will make the great pull. We should not drive the teeth off from the walls of their alveoli for the attachment of the membrane will carry lingual plate along if there is a possibility of doing so.

I have one point in the widening of arches that I wish to recommend because I have such good results from it in my own practice, though I would not recommend that the endeavor to obtain it be too strongly made; that is, to put in split plates for young patients where we want to widen the arch, or put in the best anchorage you can get against the teeth, then put in a jackscrew between, and open the suture of the superior maxilliary bones, carrying the incisors directly apart, and carrying the two halves of the jaw apart. There is nothing which gives me as much pleasure as to see the suture opened readily and widely. It can then be held until it it closed by a new formation of bone. I have done this in a number of instances with the happiest results. There is no movement of the teeth in the sockets. The movement is accomplished quickly and satisfactorily, but you cannot do it in every case, and should not try except with young patients.

Just one question. The apparatus Dr. Case has put on here is a very elegant one, and particularly those elastic ligatures pulling in the particular direction which you see. As I sat here and looked at the pictures, a thought came to my mind, that taking the proportions, the position of the lower jaw, the position of the lip, the evident improvement seemed to be from something else than the movement of the teeth. I was anxious to measure the cast which I did the best I could as they were passed along, and it seems to me the irregularity is not corrected by the movement of the teeth entirely, but the movement is in the glenoid cavity or ramus of the bone, very largely, bringing the whole body of the lower jawbone backward and correcting the irregularity in that way. Bringing the lower jawbone backward, and the teeth with it, we get on toward the occlusion of the front teeth very rapidly, and the measurement of the cast seems to indicate that the whole body of the lower jaw has been thrown back one-quarter inch. Am I right, Dr. Case?

Dr. CASE: I do not think so.

Dr. BLACK: It strikes me so from looking at the pictures and models and putting my rule upon it; though I could not make the measurement very accurately.

I will say this, that a considerable number of cases with the front teeth not occluding, occluding on the molars only, are caused by the bite being jumped forward on account of some malocclusion of cusps of the teeth, and which becomes permanent. If we can jump the bite backward we will accomplish our work. Cross bites are formed in a similar way. I corrected one some years ago in three days. The bite was simply jumped by a malocclusion of cusps and it became a habitual position, but in three days' time I had it corrected by changing the cusps and applying an apparatus so as to compel the bite to be changed back to its normal position. It became easy in three days, and the cross bite was corrected.

Dr. BROPHY: I would like to ask Dr. Case if the anterior superior teeth have not moved forward quite a bit in the regulation of the case?

Dr. CASE: Yes, considerably, though I think the great change here is due to forcing forward the alveolus and roots of the incisor teeth, producing a fuller contour of the face over the incisive fossæ. The peculiar closure was not due to malocclusion of the cusps of the teeth, nor do I believe that the change which has been brought about is due to any change in the shape of the jaw, or absorption of tissue in the glenoid fossæ. The only force in the apparatus that could have caused this was the rubber bands extending forward from the upper molars to the lower bar, and that has not been sufficient nor worn long enough to produce any material change in this regard.

I have in mind a number of cases in my private and college practice where four or five times as much force, extending over months of time, was brought to bear upon the chin, externally, by an occipital appliance, and I must say this method has so far proven very unsatisfactory in my hands.

Dr. E. L. Clifford: Is the symphysis or point of the chin just as far forward as it ever was?

Dr. Case: I think so. If you will examine the model of the articulated jaws at the beginning of the operation and compare it with the one of to-day you will see that the upper and lower molar teeth in both are in about the same relative position, though that may not be any sure indication, because the apparatus may have changed their occluding positions somewhat.

I believe there has been no relative movement posteriorly of the point of the chin, though I have not measured the models. The entire change has been produced by the extraction of the bicuspids and forcing the anterior teeth back to close the space, together with a corresponding forward movement of the upper anterior teeth, and in such a way as to give a fuller contour of the face over the incisive fossæ. If such marked change could be brought about by pressure upon the chin or any part of the jaws, it would be a very happy thing, because all that would be necessary would be to bring proper force upon the chin with the occipital pressure. I think I have tried that method enough to satify me that unless it is with very young patients no material change can be brought about. So that I have now decided where there is a deep depression beneath the nose with a prominence of the lower, the better way is to force the upper forward in such manner that the teeth will remain in about the same upright position. I do that by the apparatus which I have described. In that way I force the upper part of the face forward, which is more satisfactory to me than to attempt to force the lower jaw back. In regard to the expanding of the arch, I believe I am fortunate in not expressing a radical preference for any one method, my only object being to establish the usefulness of the Coffin expanding plate for certain classes of cases.

Dr. T. W. Brophy: I want to call the attention of the society to the anatomical structure of the neck of the condyle, how narrow and constricted it is. I am of the opinion that the changes which occur by the movement of the jaw backward by means of elastic bands and pressure upon the chin are due more to the bending of the narrow neck of the condyle in young subjects than any change in the glenoid fossa itself. The only change that can occur in the glenoid fossa is a depression of the cartilage upon its posterior wall, also the body of the bone may be sprung and bent, as has been frequently demonstrated to the satisfaction of every one in cases of burns upon the neck under the chin, and whatever continuous stretching of the integument takes place following cicatrization of the skin, there we have evidence that the bone may be bent to a very great extent, far more so than we would suppose had we not that clinical experience.

I desire to sound a word of warning about the method that Dr. Black mentioned of expanding the arch. The method would do very well in healthy subjects, but if we were to have a patient that was suffering from any disease affecting the general system of a specific character, I doubt very much the propriety of such a procedure. He intended to speak of this, I presume, but he did not qualify his statement in that way. We have cases frequently presenting evidences of constitutional or perhaps hereditary disease, in which I think it would be imprudent to resort to that kind of treatment, as we might have a destructive inflammation ensue.

Dr. D. M. Gallie read a paper entitled "Treatment of Deciduous Teeth and the First Permanent Molar."

Dr. A. H. PECK (opening the discussion): Mr. President, I presume it would not be considered exactly courteous and certainly not in accordance with the rules of custom in opening the discussion of this paper were I not first to pay the essayist a compliment, and that I shall do in the following manner. Brevity is the very last thing I would think of offering an apology for, for I believe the man who uses the fewest words usually advances the most ideas, and I regard the present paper as no exception.

With regard to what the essayist has said about the dentist being able to wisely administer constitutional treatment during dentition I most heartily agree. I certainly think that that part of the treatment of the child belongs to us and not to the physician, and I think we ought all of us endeavor to so inform ourselves that we shall be able at all times to render careful, proper and just treatment, that the dentition of the child shall be made easy and comfortable; for it is true, as the essayist has intimated, that the physician when called, first thinks of the lancet or knife. You know they belong to the "heroic class," and "heroic treatment" is the kind usually that comes to their mind first.

In regard to the use of the lancet, I think there are times when we cannot possibly dispense with it. On the other hand, it is possible that it is used more frequently than it ought to be, as the essayist has also intimated. In addition to the cases cited by him where it would be wise to use the lancet, I think there are other cases where its use is beneficial. I have had a little experience, not very much, along this line. When for instance, in cutting its molar teeth the gums of a child appear a little puffed, while the color may be perfectly clear or normal, and there seems to be more or less of an itching sensation. The child manifests a desire to bite, or rub it gums. If the lancet is used under such conditions it will prove very beneficial. I have used it under these circumstances when the chief discharge would be a thick, serous fluid, seemingly between the soft tissues and the crown of the tooth, and the child at once experienced great relief. There are other cases which might be cited, but I will not take up the time to refer to them.

In regard to gaining the confidence of the little ones before attempting to perform any operation, I consider it our first duty. We cannot treat these little patients as though they had no minds, for they have, and I tell you many times they think more than we give them credit for, and we should not forget that our first duty is to endeavor to impress them favorably, gain their confidence, and once gained it is not easily taken away. If we succeed in doing this we shall be able to handle the little patient almost at will.

In regard to the insertion of a continuous plug in the proximal cavities of two teeth facing each other, I shall have to disagree with the essayist. I think there are some serious objections to it, and that we should not practice it. If the filling material that is used be dense and hard it will not allow the free, easy, independent motion which nature intends the teeth shall have in the arch, or else there will be more or less movement of the plug in the cavity, thus defeating the object for which it was inserted--the preservation of the tooth from further decay. If the material is soft, it is liable to be jammed into the gum festoon by the force of mastication, thus causing trouble in this way. I think it is always best to make these fillings separate.

In regard to the filling material for temporary teeth, my experience has taught me not to place too much confidence in the use of amalgam alone, for it is so difficult to keep the cavity perfectly dry, which condition is really necessary for the best results. It is often impossible and almost always impracticable to try to use a rubber dam in these cases. You have to use napkins or pellets of cotton in order to keep out the moisture. The least moisture in a cavity when inserting amalgam is very detrimental, although it may be used in many cases and last well. Hard gutta-percha will last for some time, especially in the proximal surfaces. A filling which I have had good success with in my limited experience is a combination of amalgam and cement. It is by no means new. It has been advanced in this society and others a great many times. Mix the amalgam and cement, equal parts, the amalgam tending hardness to the plug, the cement sticking to the walls, thus preventing leakage so far as possible.

In regard to a filling material for the sixth year molars, I think there is nothing so good as tin for early filling for a few years until the child is older and can better undergo the rigors of a more severe operation, when it may be changed for whatever filling material is desired. There seems to be preserving qualities in connection with tin which I find in none others for these cases.

In regard to the treatment of abscesses in connection with the *temporary teeth*, I not only think that prolonged treatment is unnecessary, but inadvisable. If there be a fistulous opening connected with the abscess one treatment is usually all that I care to give. I will say right here that a course of treatment for these cases might be laid down which, I think, may be followed with a reasonable degree of success.

In the treatment of blind abscesses, I have recently had some experience. Within the past two months I have treated three or four in the same mouth. The only treatment which I have given these is to cleanse them thoroughly and fill at once, and I have not heard from any of them.

A MEMBER: What was your treatment?

DR. PECK: First I removed the *debris* from the cavity, cleansed the pulp chamber and root canals, exerted slight pressure on both the lingual and buccal sides, forcing out all the discharge I possibly could, wiping it out and drying the canal with threads of cotton. I washed the canals with a weak solution of carbolized water; drying them, I washed with peroxide of hydrogen thoroughly, then with oil of cassia, dried, and filled them.

There was one thing mentioned in the paper when I had the pleasure of looking it over, that I do not remember hearing read, and that was in regard to practicing deception in the treatment of these little ones. That is one thing we ought never to do. If we wish to treat the teeth of little children they ought to know what we intend to do, for if they once incur our displeasure, no matter how early it may be, it is almost certain to remain with them through life.

In regard to the first permanent molar, I presume the statement of the essayist is correct. It is one of the most abused teeth in the mouth, and for the reasons in part which he has mentioned. I presume ninty-nine out of one hundred of the parents consider these temporary teeth, being erupted early in life, at about six years of age, and of such little consequence that they pay no attention to them. They let them go and they decay early. I consider the six year molar when it may be preserved in good condition the most important tooth in the mouth for masticating purposes. It has the greatest amount of grinding surface and we should strive in all cases to preserve it wherever possible. Whenever the conditions are such as to render it impossible to save the tooth, I think we should never extract one without extracting the one on the opposite side, even though it may be a perfectly good tooth, for many times when one is taken out and the other left the teeth of the entire arch move around in the direction of the space, and not infrequently have I seen the teeth in the upper arch thus moved half the width of an incisor. But if both are extracted early the second and third molars come forward and fill the space, thus leaving the arch regular and the teeth in good condition. About the tipping of the second molar forward and the second bicuspid backward, I think such results will not be had to any considerable extent except the six year molars are extracted late in life. If they are taken out before the twelve year molars are erupted, I hardly think there will be much, if any tipping. If they are to be extracted at all, take them out as early as possible.

Dr. A. W. Harlan: I did not expect to say anything about this paper to-night. It is getting late. I will say a few words about the remarks of Dr. Peck, and the first thing is with reference to his treatment of blind abscess. If he persists in treating blind abscesses the way he has detailed here to-night, he will get into trouble, because the treatment he lays down is polypharmaceutical and is unnecessary. If we are going to treat a blind abscess at one sitting there is no object in washing the cavity with carbolized water, for the reason that a five per cent solution of carbolic acid in water is not effective as a sterilizing agent.

If you wish to cleanse the root of a tooth, peroxide of hydrogen will do it much better and peroxide of hydrogen for washing out the roots of teeth with blind abscesses is a bad thing, for if any of it goes through the root or the canal and beyond it you have a good deal of difficulty in getting it out. You had better use something in the nature of a sterilizing agent that will not liberate any oxygen and thereby prevent the possibility of any of it getting through the apex of a tooth. The oil of cassia is an irritating agent. While very valuable in a great many cases in the treatment of blind abscesses, it is not here indicated. Something blander, less irritating, less stimulating, Dr. Peck and others will find by experience is much better. The average blind abscess is not a blind abscess at all, because the apex of the root is encysted. It is not always a success to fill the root of a tooth at a single sitting. There may be a recurrence of the abscess, or an acute alveolar abscess may form after the lapse of five years, and there is not a man present who can take a blind abscess that discharges pus and after he opens into it through the root canal and say that he can within five, ten, fifteen, or thirty minutes completely sterilize the dentine, fill the root, and be absolutely certain there will not be a recurrence of the abscess and subsequent swelling of the face.

With reference to bridging fillings between teeth, suppose the teeth do move, what of it? We do not fill these teeth with the expectation that they will last for seven or eight years. Sometimes it is the only thing we can do. As a matter of expediency, you only adopt it as a last resort. I do not suppose Dr. Gallie would take every proximal cavity that was opposite another one and put gutta-percha in and bridge them over. It is in those cases where he cannot help himself. There are some children who have been in the hands of other dentists before they come to you and have been deceived, and you must undeceive them. You start in by filling a cavity, or not filling it at all, and let them come again. The best thing you can do in many cases is to put a bridge across. I do not care if the filling is lost or not. In order to prevent its being lost, I clean out the cavity as well as I can, dry it, varnish it with copal ether varnish or some substance not affected by water, then insert gutta-percha. The varnish is impervious, and if the filling is destined to last two or three years it will do that. I have put in hundreds—yes, I may say thousands of them—but I do not recommend any other dentist to do it except as a last resort.

When it comes to that he had better do it than to leave the tooth to trouble the patient.

With reference to the filling of cavities of teeth with tin, it is excellent practice indeed. It is not alone excellent practice, but every young and old dentist who has not absolute manipulative control of his fingers, if he will only learn to put in tin fillings—I do not care where he puts them in—he becomes a more expert manipulator, and consequently it is better to pack tin in the cavities of first permanent molars and other teeth than to stuff amalgam in them. When he uses tin it makes him feel as though he had done a nice operation; whereas, in the other case, while he may do a nice operation, it will not be as satisfactory. You cannot lay down a rule for the treatment of abscesses at a single treatment and successfully practice it. I have seen plenty of abscesses that had been of seven, ten, or fifteen years' duration, and neither Dr. Peck nor any other dentist can open into a case of that kind, pump medicine through the root canal, fill the root, leave a hole as large as the end of my finger beyond the apex of the root excavated, and have it fill with new tissue as the result of that same treatment. He does not sufficiently cleanse the abscess pocket that occupies not only the apical space, but six or ten times the apical space—nature must fill that. The only way to do that is to irrigate it, disinfect it, stimulate it, and wait.

Dr. PECK: Mr. President, Dr. Harlan has certainly misunderstood the intended application of my remarks along the line of the treatment of abscesses. They were confined, if you please, exclusively to the temporary teeth.

DR. GALLIE: (Closing the discussion.) In regard to the use of cement and amalgam, I have had better success in using the amalgam alone. After the amalgam is inserted it is not affected by moisture; when in using it mixed with cement if not kept dry for a short time after insertion it will be affected by the saliva.

In reference to the insertion of gutta-percha, I hope you did not infer from my paper that I was inserting it in every case, when two proximal cavities faced each other.

It is only in cases where the walls of the cavities are very frail and when retention is difficult to obtain for separate fillings.

As a filling material I think tin or tin and gold excellent ones for first molars. I believe tin and gold the best wherever it can be used; it works easier I think, and gives a harder surface.

No doubt if the first molar is extracted at the proper time, that is a little before the eruption of the second molar, we will have in the majority of cases no tipping of the adjoining teeth. Still in some cases we do. A short time ago I had a case where the first molar had been extracted at the proper time, but there was a great tipping of the bicuspid and second molar. This might have been partly caused by the irregularity of the upper teeth as they were very irregular.

Lysol.—Attention having been drawn by the recent cholera "scare" to the popularity of carbolic acid as a disinfectant, notice is being taken in medical circles of the even superior advantages for many purposes of the cresols as disinfectants. It was discovered that crude carbolic acid made soluble by the action of sulphuric acid surpassed in germicidal power an equally strong solution of pure phenol, besides which creolin, although free from carbolic acid, was proved to be of unmistakably superior disinfecting activity to the latter. Being insoluble in water, however, these cresols were neglected until the idea was hit upon of combining them with resin soap. Although very efficacious, these preparations were only emulsions; and it remained for the cresols to be made soluble, as now in the form of lysol, in order that what can be called the ideal soluble disinfectant should be made generally available. Lysol is produced by dissolving in fat, and subsequently saponifying, with the addition of alcohol, the fraction of tar oil which boils between 190° and 200° Cent. It is a brown, oily-looking, clear liquid, with a feebly aromatic creosote-like odor. It contains 50 per cent of cresols; and it is miscible with water to a clear, saponaceous, frothing fluid. It shows turbidity when mixed with hard water; but its disinfectant quality is not impaired thereby. It acts, to all intents and purposes, as a soap; and it is admirably adapted for use in surgical operations. According to German testimony, lysol is one of the most precious products of coal tar which chemistry has given to the service of mankind.—*Scientific American.*

THE DENTAL REVIEW.

Devoted to the Advancement of Dental Science.

PUBLISHED MONTHLY.

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ASSOCIATE EDITORS:

C. N. JOHNSON, L. D. S., D. D. S. T. L. GILMER, M. D., D. D. S.

COME AGAIN.

Our versatile and deft philological friend, the editor of the *Dental Practitioner and Advertiser*, retorts by saying—well what did he say?—says arsenicosum is correct spelling. So it is for Germany as Prof. Miller in another column points out; page 38.

We beg to remind Prof. Miller that he is writing for an English speaking audience and there is no English speaking *authority* for his manner of spelling arsenic. We have taken the trouble to investigate the matter thoroughly. Bloxam, Fownes, Muir, Morly, W. S. P., the two dispensatories, Gould, and others, are agreed on this point.

Of course the first little note was a jocosity, but this is intended for an authoritative *dictum*, backed by the above quoted authors.

As to our errors we plead guilty, humbly, contritely and in meekness of spirit, but they are only technical errors, not of the substance.

We are in the position of a little boy who had an enormous appetite when he sat down to dinner. A little later he was so full that tears came to his eyes because he could not eat it all. Every month we have such a mass of matter poured into our hopper that we cry because we have not time to turn it out in the shape that we would desire, but the *substance* is correct every time, and we are content to live in such a vitreous abode when it comes to such a pass. Small polished gems are not so valuable as the rough diamond. They never will be until they become more numerous.

THE WORLD'S COLUMBIAN DENTAL CONGRESS.

Nothing will prevent the success of the Congress. Counter-attractions at Washington and Rome will only tend to crystallize around the idea of the Dental Congress. The first thought was born and utterance given to it as long ago as 1885, the official promulgation of its existence took place in July, 1890, at Atlanta, to be taken up in August, at Excelsior Springs, Mo. All the preliminary work has been done, nearly forty papers have been promised, all of a scientific interest, epoch-making essays that will carry their author's names not already well known, into the history of the times. The dentists of America, North and South, including the dentists of Canada and Mexico, will bestir themselves to put on a holiday garb and make ready for our visitors and guests. To the dentists of foreign climes, America sends greeting, inviting your attendance at the sessions of the World's Columbian Dental Congress, Chicago, August 14, 1893. Nothing will be omitted to provide for the comfort and entertainment of all who come accredited with the proper credentials. It is not necessary to further ask for papers from those at home or abroad, as the list is continually growing and from the best men. The managers will endeavor to illustrate in various ways all the phases of dental science and practice to the entertainment and enlightenment of the civilized world. The reader of this article is invited, if he has anything, new, old, or valuable, to send or bring it to the appropriate committee in time to properly classify it and present it at the Congress.

If there is any ambitious Westerner, or Southerner, or Northerner, or denizen of the East, who has not sent in the title of his paper let him do it at once, so the committee may know just what to expect. We do not lack for numbers, they are assured. What we desire, above all, is an audience that will reflect the integrity, the attainments, and grand intelligence of the world of dentists.

IMPORTANT CONGRESS NOTICE.

The Editor of the *International Dental Journal* is unfortunate in his interpretation of the printed order of business of the World's Columbian Dental Congress, recently sent out for publication. He objects to the daily "Address before the whole Congress," and says that, "The time given to addresses should be limited to the first day and the first session, and the other periods to scientific matters."

For fear others may fall into the same error of taking for granted that the daily addresses referred to are of a social character, we wish to make a plain statement to the effect that the matters treated on will be wholly of a scientific nature. The addresses will be from twenty to thirty minutes in length, and the subject matter will then be open for discussion before the whole Congress.

The essential feature of these daily addresses consists in the requirement that they must be of general interest to the whole Congress, rather than of special interest to any one section.

The Editor of the *International Dental Journal* need not lament the lack of attention given to scientific work, for all the indications point to the fact that there will be more work of scientific value done in that one week of the Congress than ever was done before in an equal time in the history of the profession.

DOMESTIC CORRESPONDENCE.

EDITORIAL CORRESPONDENCE.

NEW ORLEANS, LA.

To the Editor of the Dental Review:

DEAR SIR: We left Chicago with a zero temperature, and in twenty-nine hours reached this city, to find the thermometer seventy above. Although we of the north may be perfectly cognizant of this difference of climate, still the personal experience of it is novel, and makes one realize more fully the wonderful possibilities of our country. The trees are growing green, the gardens are already supplying the tables, and flowers are blooming out of doors.

"Rex, King of the Carnival," reigns now, and Boreas is unknown.

All roads lead to New Orleans during Mardi Gras. Judging from the crowded streets and hotels, the public have taken advantage of the reduced rates on rail and river lines and are all here, and seemingly are having enough of a good time to last over lent. State societies of all kinds are holding meetings here. The people are coming anyhow, so there is a chance of a fuller attendance, it is thought. We have seen Mardi Gras, but found our greatest pleasure in meeting with the Louisiana State Dental Society, and a royal assemblage of men they are.

The society is not large, but in proportion to the number of dentists in the State the attendance is quite the equal of that of other States having more to draw from.

Dr. Eckhardt, of New Orleans, the gentlemanly President, gave a very interesting address, which was well received. Among other things he strongly recommends the establishment of a Dental School in this city, and offers some very good reasons why it would probably be a success. In conversation with the President and many others, we found a lively interest in the prospect of the International Congress of Dentists and almost to a man a desire to attend it. Indeed you may look for a strong delegation from this part of the South. Dr. Ottofy, of Chicago, and the writer were invited to address the convention on the subject.

There was a full quota of interesting papers on subjects usually presented to such bodies. Among those of especial interest were, one by our genial friend, Dr. Geo. J. Friederichs, subject "Root Filling;" one by Dr. J. J. Sarrazan, subject, "Homeopathy Applied to Dentistry;" another on "Education of the Masses Regarding the Teeth and their Care," by C. C. Delhommer, of Plaquemine.

As usual the clinics were made a special feature, but unfortunately we were not able to attend them. In the election of officers we noticed the letter "J" seemed to prove a mascot. All the principal officers have this letter as the first initial, except one, and he has it as second. We give the list:

President, Dr. A. J. Bercier, Opelousas; First Vice President, Dr. J. M. Comegys, Shreveport; Second Vice President, Dr. J. Paul Bayon, New Orleans; Recording Secretary, Dr. J. McCulloch, New Orleans; Corresponding Secretary, Dr. J. J. Sarrazan, New Orleans; Treasurer, Dr. J. W. Adams, New Orleans.

We found little to criticise in the meetings, but we venture to offer one suggestion, which is that the State convention be held in some other city, or at some other time than during Mardi Gras, if in this city, because of fewer outside attractions to draw attention from the deliberations of the meetings.

We must commend the dentists of Louisiana for their hospitality. We are especially indebted to Dr. Geo. J. Friederichs, Dr. and Mrs. A. G. Friederichs, Dr. Edmund Kells, of New Orleans, and Dr. Comegys, of Shreveport, for kindly attention and hospitality. Yours truly,

T. L. G.

REVIEWS AND ABSTRACTS.

The following bill for regulating the practice of dentistry in Wyoming was passed, and goes into effect February 18th, 1893:

Be it enaeted by the Legislature of the State of Wyoming:

SECTION 1. It shall be unlawful for any persons to practice dentistry or dental surgery in the State of Wyoming without first having received a diploma from a reputable dental college or university, duly incorporated or established under the laws of some one of the United States or some foreign goverment, which is recognized as such by the National Association of Dental Examiners: *Provided*, that nothing in Section one of this Act shall apply to any bona fide practitioner of dentistry or dental surgery in this State at the time of the passage of this Act; and, *Provided*, That nothing in this Act shall be so construed as to prevent physicians or surgeons from extracting teeth.

SEC. 2. Every person who shall hereafter engage in the practice of dentistry or dental surgery in this State shall file a copy of his or her diploma with the County Clerk of the County in which he or she resides, which copy shall be sworn to by the party filing the same, and the clerk shall give a certificate with the seal of the county attached thereto, to such party filing the copy of his or her diploma, and shall file or register the name of the person, the date of the filing, and the nature of the instrument, in a book to be kept by him for that purpose.

SEC. 3. Every bona fide practitioner of dentistry or dental surgery residing in this State at the time of the passage of this Act, and desiring to continue the same, shall within sixty days after the passage of this Act, file an affidavit of said facts as to the length of time he or she has practiced in this State, with the County Clerk of the County in which he or she resides, and the said clerk shall register the name of and give a certificate to the party filing the affidavit, in like manner and of like effect as hereinbefore provided.

SEC. 4. All certificates issued under the provisions of this Act shall be prima facie evidence of the right of the holder to practice under this Act.

SEC. 5. Every person violating the provisions of this Act shall, upon conviction thereof, be deemed guilty of a misdemeanor, and be punished by a fine of not less than fifty dollars, nor more than two hundred dollars, for each and every offense, or be imprisoned in the county jail for sixty days, or both fine and imprisonment, at the discretion of the court, and all fines collected shall belong to and be paid into the common school funds of the county where the offense was committed.

SEC. 6. Any person who shall have filed his or her affidavit or diploma, as required in Sections two and three of this Act, in one county and remove to another county, shall, before entering upon the practice of his or her profession in such last named county, procure a certified copy of the record of his or her former registry, and cause such transcript to be filed and recorded in the dental register of such county in which he or she has removed.

SEC. 7. This Act shall take effect and be in force from and after its passage.

PAMPHLETS RECEIVED.

Syphilis of the Mouth and Teeth, by A. C. Hugenschmidt, M. D., D. D. S., Paris, France. Reprinted from the *Dental Cosmos*.

First and Second Reports of the School Committee of the British Dental Association on the Condition of the Teeth of School Children. London 1891 and 1892.

Des Complications Infectieuses Buccales et Dentaires de La Grippe pendant les Epidemies de 1889–90 et 91–92, par le Dr. Hugenschmidt, Paris, France. Extract de la *Revue Internationale d' Odontologie*, Paris, 1892.

A Communication Introducing the First Report of the School Committee of the British Dental Association on the Condition of the teeth of School Children. By Geo. Cunningham M. A., D. M. D., L. D. S., England, and the discussion thereon at the Annual General Meeting of the B. D. A., August, 1891, London. John Bale & Sons, 1892.

PRACTICAL NOTES.

Pulpless Teeth.*

By W. D. James, D. D. S.

This is a subject of great importance, and full of interest to every progressive dentist. Only a few years ago the treatment of pulpless teeth was looked upon as a very uncertain practice, and it was only the most favorable cases that were undertaken at all. To-day it is hardly excusable to extract a tooth or root that can be retained and made serviceable. In the diagnosis of dental irritation it is not safe to rely upon the judgment of our patients in locating pain, as nervous reflex action may be present and greatly mislead us.

It is not my purpose to go into the details of reflex action, for much of the subject lies in obscurity, and it is hard to draw the line between conscious and unconscious action.

Dental irritation (pain in tooth) will not always give us the correct location or seat of the trouble. A badly diseased root may not only affect the teeth on the same side, but also those of the opposite side of the mouth. Or pain in teeth may arise from other functional disturbances in the body. It is therefore necessary for us, as dentists, to study the pathological conditions of dental irritation. An investigation of the subject will reveal the fact that decayed and pulpless teeth, whether attended with pain or not, are a source from which springs disease.

Related as the teeth are to the alveolus and connected by a dense fibrous membrane supplied with blood vessels arteries, nerves and lymphatics. Considering their anatomical and physiological relation to one another and their same relation to the head and face, it is reasonable to suppose that pulpless teeth when not thoroughly treated, prepared and filled, will prevent the healthy performance of function, and therefore sooner or later produce disease.

Some operators think it is better in many cases not to disturb a pulpless tooth (which is not giving trouble) on the ground that a worse condition may arise from disturbing it. I do not consider that there is any trouble or danger in such a case if it is properly treated. A pulpless tooth is not necessarily a foreign substance in the jaw, for the cementum through the medium of the pericemental membrane will furnish sufficient nourishment to keep it in a healthy condition, providing the pulp is devitalized and the pulp canals properly filled.

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* Read before the Minnesota Dental Society.

In the preparation and treatment of this class of teeth, I consider it easier and more successful when finished to cut away the tooth sufficiently to get a full view of the pulp chamber and a direct entrance to the pulp canals of the root. Then with the properly shaped broaches clean and enlarge the canal to the apical foramen without endangering the sides of the root, which one is very liable to do in using the engine drills. The great objection to engine drills is, that when the roots are curved or the nerve canals are tortuous they will not follow the canal but will pass through the root at the angle. The only time I use the engine drills is when the pulp has been dead a long time and the dentine has become softened by decay.

In the filling of this class of teeth, after the thorough removal of the pulp remains, syringe the cavity with tepid water, then wipe out with peroxide of hydrogen, or any of the antiseptic remedies which we may know to be good, dry with the hot air syringe, then thoroughly saturate with oil eucalyptus; dry again as before. Now the canals are ready to be filled with cement or gutta-percha stopping, after which fill with whatever material indicated (*rubber dam having been previously applied*).

The treatment of teeth in which the nerves are found dead, differ only in the septic condition present. If there is a fistulous opening, first obtain a free opening, and then wash out thoroughly with tepid water, following with peroxide of hydrogen, or solution of carbolic acid. Then dry cavity with hot air, and insert a dressing of hydronaphthol (I use) or any of the antiseptic dressings one is accustomed to using. Treat in this manner until there is no sign of pus, and the fistula commences to heal, then fill as in first case. If there is no fistula, and only a slight inflammation present, the operation may be completed at one sitting. If there is a decided inflammation, paint the gums with a preparation of chloroform, tincture of aconite, and tincture iodine, equal parts. Continue this treatment once each day until the inflammation disappears, then complete the operation.

Should any trouble follow the filling of pulpless teeth, in most cases it can be remedied by making an opening through the gum over the apex of the root and treating through it.

In conclusion I will say, I have not tried to advance any new ideas or theories, but have tried in my own way to give the method which I have pursued, and the one which has given me the most satisfaction. As this is a subject which is not very easily exhausted, I will leave it in the hands of the society for discussion.

Odds and Ends of Daily Practice.*

By G. A. McMillen, D. D. S., Alton, Ill.

When asked by your chairman to contribute something to the society at its seventh meeting, I replied, I will do anything most needed to fill up your programme, meaning of course, either a paper or clinic; being an unusual clever gentleman, he gave me both a paper and clinic, the latter I knew nothing of until I saw the programme. This I do not like for two reasons. First, no one should allow his name to go on a programme unless he intends to do the work, and this snap judgment is often very inconvenient to the operator, and a programme not carried out is sure to be a disappointment to some one, and often to many. While I shall try to do my part of the programme this time, I warn any incoming chairman not to book me again without fair warning.

Odds and ends of copper amalgam is often odd—and sometimes ends very badly. When copper amalgam first came into use, I was an enthusiast over it. After I had used it a year or two I was not so enthusiastic about it; not that it failed to preserve a tooth, for certainly it stands very high in this especial regard—but on account of its washing or wasting away. Observing that two fillings placed in the same mouth, one maintaining its integrity, the other washing away, convinced me the fault was in the manipulation of the amalgam, the less it is triturated or rubbed, the more mercury is left in the mass and the more surely will the filling hold its own.

This I have overcome to my entire satisfaction; formerly I used it dry, as other amalgams—but this is not the way to use copper amalgam—for the reason when you squeeze all the mercury out of copper amalgam you have free copper, and no amalgam at all. One may take a mass of copper amalgam after it is heated and broken down, and by triturating in the hand, squeeze mercury out of it almost indefinitely; this is what ruins this amalgam for filling. Leave the mercury in.

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*Read before the Southern Illinois Dental Society, October, 1892.

Free copper will not stand the fluids of the mouth; now instead of dry copper I use it wet with mercury. Do this and let me know when we meet again what the result has been. I think copper amalgam so used will preserve soft white ill kept teeth, and especially if at gingival or gum margins, better than any filling known to the profession to-day. Use it wet with mercury. I use Rowan's amalgam; it is probably no better than others, but it has served me well.

Nitrate of silver in my office is a staple. If you have not tried it, do so. I use the powder. Wet the end of a small stick, dip into powder and apply; be careful to keep the fluids of the mouth away when you do apply, otherwise the caustic will be carried over the soft tissues, and as nitrate of silver is an escharotic, trouble will ensue. In incipient decay, especially in white decay at gum margins, or elsewhere, or decay in children's teeth I had occasion to remove a small bridge some days ago, a pier of which was a cuspid with a band around it; the tooth under this band was covered with superficial white decay. Instead of grinding this off, I cleaned the tooth carefully, and gave it a good dose of nitrate of silver. Next day, after making repairs, reset the bridge over a black tooth, but one in which decay will not recur I am sure for a long time. In so-called pyorrhœa alveolaris, I think it serves a good purpose; saturate the pus pockets after removal of tartar. I hail with delight anything that will prevent extracting or filling a child's tooth—I mean a little child. If such a mouth be carefully watched and nitrate used, carefully remember, much trouble may be avoided.

Do you use plain teeth? If not, try one set, see how much easier it is to overcome difficult places, knotty or prominent gums. Occlusion is better and easier made. Make a protest to your dealer to get teeth with longer cusps—with outside cusps longer than inside ones. Plate teeth with pins lengthwise of the tooth. Many rubber teeth would be better made with the pins lengthwise. By a united kick possibly we may accomplish something in this much needed reform.

If you have occasion to file the crown part (cusp part) of a gold crown or other small piece of metal, try setting it, by heating it into a piece of sealing wax, allowing the crown to get cold, then file to the desired shape, this will save you trouble when you want to remove it from the wax, also heat it.

Use 23-carat gold for crowns. I never use gold heavier than No. 30 for bands in crown work, you can then burnish to a nicety. In my clinic before the society you will be able to see my method of making crowns.

The use of clasps of gold upon rubber plates when properly made, I most heartily recommend. A Dr. Stedman has much improved this class of work. I often leave one tooth, especially on the lower gum for the purpose of clasping, and have been astonished at the result. Be sure to use the clasp as wide as the tooth will admit, fitted only to the largest diameter of the tooth, do not try to fit the whole surface of the tooth unless you care to go to the trouble of first fitting to the tooth a band of pure gold, then over this solder clasps, as Dr. Richmond suggests in *International Journal*, September, 1892. My method, unless one is expert enough to fit the clasp onto the tooth in the mouth, is to take an impression of the tooth or teeth to be clasped, pour the impression with Mellot's or other easy flowing metal—this, when separated from the impression will give you the tooth to be clasped, in metal; over this metal die bend your clasp until it fits the largest diameter, now remove and bed or push the clasp into charcoal, or pumice and plaster about half the width, now solder a good strong lug upon this band, by laying the lug against the band, using at least 14-carat solder, remove and place the clasp on the tooth in the mouth, see that it does not bear upon the gums—remove and flow a little hard wax—a little resin added to beeswax will make it—on the inside of the clasp and while warm place it over the tooth, be sure it is placed and held where you want it to remain in the plate, *upon this point your success or failure depends, the clasp must remain immovable when the impression is being taken*, now you are ready for the impression. I take it in plaster alone, many use stiff wax first, cut out around the clasp, fill with plaster and reinsert, I prefer plaster alone, this method applies to all parts of the mouth. Dr. Prichett saw a case of gold plates in my office where only one tooth was used, the result of which he will no doubt vouch for. It is simply incredible that this method will occasionally do especially on lower plates.

The expulsion of the pulp by forcing into the root a wooden point is marvelous to me. When this practice was first spoken of I took it with a good deal of allowance, but one day a typical case presented itself, an upper bicuspid, two roots. I had several days before applied arsenic to the pulp, but it was still sensitive, but not as much so as a live pulp. I opened the tooth so I could see what I was doing, then trimming a wood point root filler to about the right shape—I will furnish these points to any one who wants them free—I placed the point of it into the root and gave a sharp positive blow with a small hammer; to my surprise the pulp came entirely out. The gentleman said, "I felt no pain." Instead of trying to get pulp out with a broach, often piece by piece, not positive when it is all out, I really think this positive way has many points in its favor. Not always, but many times I have not had the nerve to try this method upon a live pulp. To insure a painless operation of this kind the blow must be positive and quick. I never leave the point in the root, but remove it and fill the root at once; always dip the wood point in oil cassia to disinfect and to keep it from snapping off in the root.

Gentlemen I am well aware I have presented nothing new for your edification, only a rehash, but if I have entertained you by my way of doing things I will be pleased.

MEMORANDA.

Dr. J. J. R. Patrick visited Chicago the last of February.

Dr. S. M. Cummins, of Elkhart, Ind., was a recent visitor to Chicago.

What becomes of gutta-percha when it is forced through the apex of a root?

Dr. E. C. Kirk, the editor of the *Dental Cosmos*, spent a few days in Chicago the last of February.

The *Dominion Dental Journal* is now a monthly magazine. We extend to the editor our congratulations and good wishes.

A two per cent solution of sodium ethylate painted on the blunted gum septum every other day will reduce its thickness in about eight days.

Drs. Brown and Ely, of Chicago, were burned out recently at two A. M. Both gentlemen had a narrow escape from being incinerated.

Several Chicago dentists have been ill these last few days, Drs. Allport, Pruyn and Marshall having been confined to their homes for some time.

If an amalgam filling is half in place and it gets wet, will it be possible to so dry it that more amalgam can be added so it will adhere to the wetted surface?

The British Dental Association will meet in Birmingham, April, 6th, 7th, and 8th. A social function will be indulged in the evening of April 5th. A general welcome is extended to dentists.

Dr. Joseph Bauer, of New Orleans, La., has been chosen First Assistant Secretary of the World's Columbian Dental Congress for the French Language. Dr. W. C. Wardlaw, of Augusta, Ga., is the Fourth Assistant Secretary.

The Chicago Dental Club held its seventh annual dinner Monday, February 27th, at the Tremont House, Chicago. Dr. C. S. Bacon delivered an address entitled, "Should Dentistry and Medicine become a Function of the State."

Europhen in powder........................gr. xx
Ol. gaultheria............................min. x

Paint the roof of the mouth reddened by a rubber plate, every other day. This will relieve the pain and quickly effect a cure.

CHICAGO DENTAL CLUB.

At the annual meeting of the Chicago Dental Club, held January 25th, 1893, the office of President was abolished; and in future a Chairman will be elected at each meeting to preside. The only permanent officers now are the Secretary and Treasurer, to which Dr. E. L. Clifford, and Dr. E. M. S. Fernandez were elected.

E. L. Clifford, *Secretary*,
711 Venetian Building.

We are assured that the very complete collection of Dr. O. Zsigmondy of Vienna, will be on exhibition during the coming congress at Chicago, August 14th to 19th.

The electric lamp described in the *Dental Cosmos*, page 163, for February, we are informed has never been manufactured in this country and cannot be. The effort, in consequence, to procure it, must in all cases prove futile. Of what value the description in such a case?

Elgin, February 21.

To the Editor: Enclosed find a tooth I extracted for a gentleman about forty-five years of age. The gum had not receded in the least and was in a healthy condition at the gingival margin, but the alveolus was absorbed up to and a little above the carious spot on the root. As I had never seen or heard of such a case I thought it might be of interest to readers of the Dental Review.

Yours truly,
S. A. Whedon, D. D. S.

[A cavity on the labial face of the root about midway between the apex and neck of the tooth.—Ed.]

Notice.

A fellow by the name of Mainard or Maynard has been peddling "Dorsenia" around Chicago, in Illinois, Wisconsin and elsewhere, and exhibiting an endorsement by the undersigned purporting to be a copy of the same. I desire to state that I have not used "Dorsenia," have not given such a letter, and never saw the man Maynard to my knowledge in my life. The endorsement is a fraud and a forgery.

A. W. Harlan,
Editor of the Dental Review.

March 4, 1893.

THE ILLINOIS STATE MEETING.

With all of the varied attractions in the way of society meetings during the coming summer, the profession of Illinois must not forget their own State meeting in May. Our excellent programme is assured and no pains will be spared to make this meeting sustain the record of the society in the past. Cancel your dates now so you will be sure to attend.

Dr. Hugenschmidt has an article in the *Semaine Medicale* on Tropa-Cocaine, with the following resumé of its action when injected subcutaneously:

1st. An equal dose is sufficient to produce local anæsthesia; the tropa-cocaine is a great deal less toxic than cocaine. It exercises an action less marked on the vital functions of the economy.

2d. It produces local anæsthesia more rapidly and more profound than cocaine and of equal duration.

3d. The solution of tropa-cocaine for anæsthetic injections remains stable for several months on account of its being an antiseptic, whilst a solution of cocaine loses its analgesic properties in four or five days by decomposition.

Formula for tropa-cocaine, by Dr. Hugenschmidt, Paris:

Tropa-cocaine............ 0 gramme, 10 centigr.
Aq. dist.................. 2 gramme, 50 centigr.
Misce. Sig.: Ten drops for one injection.

LETTER FROM DR. RHEIN.

March 6, 1893.

To the Editor of THE DENTAL REVIEW:

In the February issue of your valuable journal on page 157 you mention that I use "porcelain facings in bridge and crown work with an inverted bar which fits in the slot" etc. This improvement on crown and bridge work has now been in use by me for some years. Its perfect protection against accidents and usefulness for all possible repairs, makes it one of the most important innovations that I have ever seen introduced in this class of work.

Not desiring by any error of the imagination to pose as the inventor of these improvements I wish to state that the entire credit as far as I have been able to learn for the valuable invention, belongs to *Dr. F. T. Van Woert*, of Brooklyn.

Respectfully,
MEYER L. RHEIN.

ROCKING THEIR HEALTH AWAY—ABANDONMENT OF THE CRADLE A GOOD THING FOR THE LITTLE ONES.

A chance reference in reading the other day has convinced me that Plato did not reason well every time, says Elizabeth Cavazza in the *Pittsburg Dispatch.* What he did not know about putting babies to sleep, for instance, would fill a book. In his work upon "Laws" he lays down the rule for the management of infants that "they should be kept in perpetual motion and live as if they were always tossing at sea." And why? Because (he opined) fear is the emotion to be subdued—"a fear caused by something that has gone wrong within;" and the remedy for an "internal agitation is to counteract it by an external one." Which practically interpreted means: If poor baby is afraid that he will not be allowed to look at the pretty candle light, or is worried by a pain or pin—trot him incessantly and vigorously up and down, churning his little digestive apparatus into disorder; rock him until the head, bobbing helplessly, becomes dizzy and dazed in a mild form of congestion; and in sheer despair, unable to express his feelings, the "agitated" baby takes refuge in an unhealthy sleep. I do believe that a large proportion of the diseases of the brain in young children is caused by the nervous, foolish, cruel practice of keeping in perpetual motion the delicate and susceptible little bodies and heads That I may further support myself in the position I have taken against the great Plato, I will instance the case of the woman who had been brought into the state of insomnia by means of a continual spinal headache which confused her.

EUCALYPTEOL, A SUCCEDANEUM FOR EUCALYPTUS OIL AND EUCALYPTOL.

It is generally known that all the eucalyptus preparations—eucalyptol, eucalyptus oil, the powdered leaves, etc.—exert an essentially irritant action on the digestive tract, and in large doses (¾ grammes [45-60 min.] of the oil of eucalyptus) provoke congestive headache, general malaise, phenomena of intoxication, and mental prostration. Now M. Anthoine (*Bul. Gén. de Thér.*) has obtained from oil of eucalyptus, by treatment with hydrochloric acid, a crystalline, well-defined body of uniform composition, which he calls "*Eucalypteol*," and which is chemically dihydrochlorate of eucalyptene. This occurs in the form of perfectly white micaceous scales of an aromatic camphor-like odor, and a peculiar, rather feeble, but persistent taste. It is almost insoluble in water, but very soluble in alcohol, ether, chloroform, fatty and volatile oils, or petroleum; its melting point is at 50° C. (122 F).

According to physiological experiments made by Dr. Lafage, of Neuilly, eucalypteol is devoid of toxic action, and is well borne by the stomach; it is eliminated largely by the bronchial and salivary secretions, in which it reveals itself by a peculiar faint, but still appreciable aroma. The same odor is also perceptible, but more feebly in the urine; while in the intestinal fluids it is much more distinct. Clinically, the preparation was found, as was to be expected, to exert a favorable influence on the bronchial mucous membrane and on the cough in bronchitis, acute or chronic, and in certain other pulmonary affections, and to be an excellent gastro-intestinal disinfectant in such affections as typhoid fever, choleriform diarrhœa, etc. As regards the dosage of eucalypteol, in adults usually 1.5 gramme (23 grains) were given daily, in divided doses, between meals. In children, for those under 1 year, the daily dose was 25 centigrammes (3¾ grains); for those of 4 or 5 years, 30 to 50 centigrammes (4½ to 7½ grains), and for those over that age, 50 to 75 centigrammes (7½ to 11¼ grains). Owing to its slight solubility in water or glycerine, and to the facility with which it is decomposed by alcohol, eucalypteol is to be administered to adults only in wafers or capsules. In children, it is best given as a confection, to be taken with milk or water.

ELEVENTH INTERNATIONAL MEDICAL CONGRESS, ROME, ITALY, SEPTEMBER 24th, OCTOBER 1st, 1893.

American National Committee.—W. T. Briggs, Nashville, Tennessee; H. P. Bowditch, Boston, Massachusetts; S. C. Busey, Washington, D. C.; C. Cushing, San Francisco, California; N. S. Davis, Chicago, Illinois; Norman W. Kingsley,

D. D. S., New York; Wm. Osler, Baltimore, Maryland; Wm. Pepper, Philadelphia, Pennsylvania; F. Peyre Porcher, Charleston, South Carolina; Charles A. L. Reed, Cincinnati, Ohio; D. B. St. John Roosa, New York; Alex J. C. Skene, Brooklyn, New York; James Stewart, Montreal, Canada; A. Jacobi, 110 West Thirty-fourth Street, New York, Chairman.

NEW YORK, February, 1893.

In a letter dated Genoa, January 24th, 1893, the Secretary-General of the Eleventh International Congress, Professor E. Maragliano, directs the undersigned Chairman of the American National Committee to request the editors of the medical journals of America, to kindly give the greatest possible publicity to the preliminary programme and the regulations emanating from the Italian Central Committee, which I herewith have the honor to transmit.

In so doing I take the liberty of again drawing the attention of the gentlemen who intend to participate in the congress to the following:

It is the earnest wish of the central committee to receive applications at an early date. The admission fee of five dollars may be sent to the Treasurer, Professor L. Pagliani, Rome, Italy; in return, the ticket of membership will be forwarded. It is requested that a visiting card, containing name and address, be sent with each application, to facilitate exact spelling. The undersigned Chairman offers his services to whosoever will direct him to forward both application and fee.

Attention is also directed to Article 11, of the regulations, according to which papers must be announced at headquarters, on or before June 30th, and abstracts be received on or before the 31st of July.

Very respectfully,
A. JACOBI, *Chairman*,
110 West Thirty-fourth Street, New York.

NORTHERN OHIO DENTAL ASSOCIATION.

The thirty-fourth annual meeting of the Northern Ohio Dental Association will be held in the council chambers at Akron, Ohio, May 9, 10 and 11, 1893. You are cordially invited to be present.

Officers:--President, W. H. Whitslar, Cleveland; Vice-President, S. B. Dewey, Cleveland; Secretary, L. P. Bethel, Kent; Corresponding Secretary, Henry Barnes, Cleveland; Treasurer, Charles Buffett, Cleveland.

Programme:—1. The President's Address, "Landmarks."

2. "Chemistry of the Mouth," Geo. H. Wilson, Cleveland. Discussion opened by W. A. Siddall, Oberlin; J. W. Jungman, Cleveland.

3. "Artificial Crowns." D. A. Allen, Toledo. Discussion opened by Thomas H. Whiteside, Youngstown; J. E. Robinson, Cleveland.

4. "New Remedies and their Application," L. P. Bethel, Kent. Discussion opened by J. F. Dougherty, Canton; S. A. Pancoast, Ashtabula.

5. "Queries," Answered by F. S. Whitslar, Youngstown. All questions must be handed to the Corresponding Secretary before March 1st, 1893.

6. "Popular Dental Education," L. L. Barber, Toledo. Discussion opened by L. W. Ballard, Alliance; H. G. Husted, Oberlin.

7. "Noncohesive Gold and Tin" (Talk), Corydon Palmer, Warren.

8. "The Code of Ethics," W. T. Jackman, Cleveland. Discussion opened by W. P. Horton, Cleveland; A. J. Douds, Canton.

9. "Hard Deposits Within the Pulp Cavity," S. B. Dewey, Cleveland. Discussion opened by C. R. Butler, Cleveland; F. H. Waldron, Canal Dover.

10. "Prosthetic Dentistry," J. F. Stephan, Cleveland. Discussion opened by F. D. Davis, Minerva; W. H. Fowler, Painesville.

11. "Anæsthetics," J. R. Owens, Cleveland. Discussion opened by J. F. Siddall, Oberlin; J. E. Phelps, Chagrin Falls.

12. (1.) "Is it a fact that the first permanent molar in particular, but also both the first and second molars are, as a rule, the first of the permanent set to decay; and docs this occur in a majority of cases as early as from twelve to fifteen years? (2.) If this is a fact, what is the cause and how can it best be prevented?" E. J. Waye, Sandusky. Discussion opened by W. B. Connor, Akron; Theo. J. Phillips, Canton.

13. Voluntary Papers.

14. "Incidents of Office Practice." General Discussion.

15. Clinics—A new Band Attachment for Bridge Work ; Tempering Instruments, Grant Mitchell, Canton.

If you have anything of interest please bring it with you.

THE PAN-AMERICAN MEDICAL CONGRESS.

Meeting: Washington, September 5th, 6th, 7th and 8th, A. D., 1893; section on Oral and Dental Surgery; M. H. Fletcher, M. D., Executive President, Cincinnati, Ohio; John S. Marshall, M. D., English-speaking Secretary, Chicago, Illinois; Ramon Campuzano, M. D., Spanish-speaking Secretary, Philadelphia, Pennsylvania.

CINCINNATI, Ohio, January 31st, 1893.

To the Dental Profession of the Western Continent:

The Pan-American Medical Congress to meet in Washington, D. C., September 5th to 8th, 1893, being an assured success, the Dental Section promises to be well represented.

No other section of the congress can claim a greater number of men of scientific attainment. In artistic and mechanical skill, in accurate and delicate manipulation where surgery is involved, in bacteriology and histology and rapid progress in its specialty, no other surpasses that of the dental profession. Able papers on the following subjects will attest the above assertion. Cleft Palate, Hare Lip, Orthodontia, Dental Anatomy, Histology and Pathology; new growths of every character pertaining to the mouth and teeth. Diseases of the maxillary sinus and alveolar processes, Periostitis, Pulpitis and their results, Operative Dentistry, Bacteriology, Mechanical Dentistry, in addition to many other suitable topics.

This congress, being an outgrowth of the American Medical Association, the requirements for membership in this section are identical with that of the A. M. A., viz.: Any reputable practitioner holding the title of D. D. S. or M. D. S. can become a member of the same as if he possessed the M. D.

To members of the profession in our sister countries we extend a hearty invitation to visit us and participate in the meeting, either by writing papers or by being present to hear or discuss them. This is especially desirable since the congress belongs equally to all American countries. Many of you will, no doubt, visit the great World's Fair. This is also the year for the World's Columbian Dental Congress in Chicago. This meeting, however, in no way interferes with the P. A. M. C., since the Columbian comes August 14th to 19th inclusive and the P. A. M. C. September 5th to 8th inclusive in Washington, thus offering two attractions in the way of scientific dentistry in addition to the great fair. Many of the officers of one congress are officially connected with the other.

To the Columbian you are an invited guest; at the Pan-American you are participating in an institution as much your own as ours.

To the dental profession in the United States we would suggest that in taking part in this, the first meeting of the P. A. M. C, we are the hosts, and our duties as such need not be rehearsed.

The excess of dental practitioners in the United States over our sister countries will necessitate a careful selection of topics and papers in order to present the highest standard, the object being not numbers, but quality of material and ample time for discussion.

The social feature of the congress will be no small part of the attractions.

Respectfully,

M. H. **Fletcher**, M. D.,

Executive President of the Section on Oral and Dental Surgery of the P. A. M. C.

ACONITINE IN NEURALGIA.

The clinical studies on the antineuralgic properties of crystallized aconitine which have become known in these last years, have attracted the attention of physicians and we find now the results confirmed by Oulmont. He says: Aconitine acts principally in certain forms of essential neuralgia of the face, *i. e.*, in that class of neuralgia which is not connected with other disturbances, and which is without a pronounced intermittent or periodical character, obstructive neuralgias as Gubler calls them, which are often the result of colds. In these cases aconitine operates very rapid cures. Oulmont saw a neuralgia of the face which had made its appearance seven days before, and which was without pronounced periodicity, yield to aconitine immediately and permanently, after having resisted the use of quinine. Success is prompter and quicker in fresh neuralgias than in older, although in the latter case two very rapid cures have been observed. Aconitine is not without influence on secondary neuralgia or hyperæsthesia as found in dental caries, caries of the os petrosum, otitis interna, paraplegy, etc.

The treatment of acute articular rheumatism by aconitine has given excellent results. In four patients who took this medicament in increasing doses, recovery was obtained once after eight days, three times after ten days. Temperature decreased from 38 and 39° C. to 36.1 and 36.2, and frequency of the pulse decreased in proportion. In other cases recovery was somewhat slower. The results obtained by Gubler are equally remarkable. In the four cases communicated by him, in which aconitine was administered in doses of one-fifth milligr· per day, gradually progressing to four doses per day, recovery was obtained on the 9th, 10th, 12th and 13th day. The influence on the pain made itself felt very rapidly; it was slower on the fever, although unmistakable. In trigeminus neuralgias, Gubler says, the results are actually marvelous. Oulmont, in his studies, reaches the conclusion that aconitine is a medicament of determined and well-known composition of reliable and regular action; but on account of its intensity it should be applied in small doses and with long intervals. Neuralgias are frequently accompanied by pronounced accesses of intermittens. Against this form of neuralgias Moussette applies pills of exact dosage: One-fifth mg. aconitine and 0.05 gm. quinine each. Considering the energetic action of aconitine, it is recommended to examine the sensibility of patients and to commence first with three pills per day. Unless a decisive appeasement is obtained on the very first day, one pill may be added from day to day, until ten pills are reached for twenty-four hours.

This dose should be maintained until the pains have disappeared, and only in exceptional cases it should be exceeded; as soon as a diarrhæa makes its appearance, the number of pills should be diminished. Physiological studies and clinical observations have demonstrated that the appeasing action which Moussette's pills exercise on the vascular system by the intervention of the vasomotorial nerves, indicates their application in neuralgias of the trigeminus, in congestive neuralgias, in rheumatic, painful and inflammatory affections, etc. Desnos mentions a case of avetitis in which the sufferings of the patient were materially reduced by aconitine. But he remarks that the effects of aconitine vary considerably according to the origin of the preparation. Constantin Paul, too, thinks it is indispensable in each case to ascertain the origin of the preparation. It is of equal importance to the patient and to the physician that the medicament to be applied should always present a uniform composition and an exact dosage; for this reason he recommends the genuine Moussette pills.—*Dr. X. Delmis, in Bulletin Medical.*

THE ELEVENTH INTERNATIONAL CONGRESS OF MEDICINE, ROME, SEPTEMBER 24TH, TO OCTOBER 1ST, 1893.

President, Prof. G. Baccelli, Rome; Treasurer, Prof. L. Pagliani, Rome; Secretary General, Prof. E. Maragliano, Genoa.

The inauguration of the Eleventh International Congress will take place the 24th of September, 1893, in the presence of H. M. the King of Italy.

The work of the Congress will begin in the nineteen sections on the morning of the 25th of September. It will be continued in accordance with the arrangements to be made and published both for the general sessions and the sections. Some of the general sessions will be devoted to scientific addresses delivered by scientists of all nations.

LIST OF THE SERIES.

1. Anatomy.
2. Physiology.
3. General Pathology and Pathological Anatomy.
4. Pharmacology.
5. Internal Medicine.
6. Diseases of Children.
7. Psychiatry, Neuropathology and Criminal Anthropology.
8. Surgery and Orthopedy.
9. Obstetrics and Gynæcology.
10. Laryngology.
11. Otology.
12. Ophthalmology.
13. Odontology.
14. Military Medicine and Surgery.
15. Hygiene.
16. Sanitary Engineering.
17. Dermatology and Syphilology.
18. Forensic Medicine.
19. Hydrology and Climatology.

REGULATIONS.

1. The Eleventh International Congress of Medicine will be inaugurated in Rome, on the 24th of September, 1893, and will close on the 1st of October.

2. Any physician may become an active member of the Congress by fulfilling the conditions of membership, inscribing his name and securing his admission ticket.

3. Scientists of other professions who, through their special studies, are interested in the labors of the Congress, may acquire the rights and assume the duties of active members, and participate in the work of the Congress, both by communications and discussions.

4. The fee for admission to the Congress is twenty-five francs, or five dollars.* It entitles to a copy of the Transactions of the Congress, which will be forwarded to the members immediately after publication.

5. The character of the Congress is strictly and exclusively scientific.

6. The work of the Congress will be divided amongst nineteen sections; every member is requested to indicate, on paying his admission fee, the section for which he desires to be inscribed.

7. The provisional committee will arrange the appointment, in the opening session, of the permanent officers. They will be a president, three vice presidents, a number of honorary presidents and secretaries. Each section will elect, in its first meeting, its president and a certain number of honorary presidents, who shall alternately take the chair during the session. Some of the secretaries will be chosen from among the foreign members in order to facilitate the recording both of communications and of discussions in the different languages.

8. There will be daily sessions, either general or sectional. The times and numbers of the general sessions, and the business to be transacted in them will be arranged by the President of the Congress.

9. The general sessions are reserved (*a*) for the consideration of the common work of the Congress, and of its common interests; (*b*) for addresses and communications of general interest and importance.

10. The addresses in the general session, and in such extraordinary sessions as may be arranged, will be delivered by members chosen by the committee for the purpose.

11. Papers for and communications to the Congress must be announced on or before June 30th, 1893. A brief abstract of every paper and communication, with their conclusions, must be sent to the committee on or before July 31st. All of them will be printed and distributed to the members by authority of the president. Such as arrive after that date cannot be expected to find a place on the regular order of business, and will be accepted only if time will permit.

12. The business of the sections will be arranged by their presidents, who will also determine the hours of meeting, avoiding those reserved for the general sessions. Two or more sections may hold joint meetings with the consent of their presidents. There will be no vote on scientific questions.

13. Fifteen minutes are allowed for the reading of a paper or communication. In the discussion every speaker can have the floor but once, and for five

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*Money order or check to the Treasurer, Professor Comm. L. Pagliani, Rome, Italy.

minutes only. To close the discussion the author of the paper is allowed ten minutes. Additional time may be given him by the president, by special resolution of the section, if the importance of the subject under discussion appear to require it.

14. The manuscript of all addresses, papers and communications read either before a general session or a section must be handed to the secretary before the close of the meeting. A special committee on publication appointed by the president will decide, which or what part of them shall be published in the Transactions of the Congress. Such members as participated in the discussions are required to hand to the secretaries their remarks in writing.

15. The official languages of the sessions are, Italian, French, English and German. The regulations, programmes and daily bulletins will be published in the above four languages. During the meetings, however, a member may be permitted to use, for a brief remark, any other language provided some member present expresses his willingness to translate such remarks into any of the official languages.

16. The President directs the discussions according to the parliamentary rules generally obeyed in similar assemblies.

17. Persons not classified under Article 3, who are interested in the labors of a special section, may be admitted by the President of the Congress. They will receive a special ticket on paying their admission fee; will not be entitled to a copy of the Transactions; and cannot speak in the general sessions nor in any section other than that for which they were inscribed.

18. The President may invite or admit students of medicine to attend and to listen. They will be given a special admission ticket, free of charge.

General Information.

Journeys and Reduction of Fares.--The provisional committee has made arrangements with the different Italian and foreign railway and navigation companies, in pursuance whereof special reduced prices have been granted on the steamers and railways of this country and of the countries which the members of Congress are to traverse.

In Italy the members of Congress will find tickets for round trips, starting from Rome; they will thereby be enabled to visit the most important cities and the various universities. In regard to this, further notice will be given.

The ladies of the members will be furnished ladies' tickets, which will entitle them to the reduced fares granted to the members, and to participate in the festivities connected with the Congress.

Festivities.--Besides the receptions which the kind and hospitable citizens of Rome will offer to the members, the Italian colleagues will endeavor to return to the best of their power, the kindness they experienced during their stay abroad.

On some evening yet to be decided, the members of the different sections will join at a dinner which will be given in one of the first hotels of Rome.

The Italian physicians have formed special committees to show the most hearty and kindly hospitality toward the foreign colleagues.

International Exhibition of Medicine and Hygiene.--On the occasion of the Eleventh International Medical Congress, an exhibition of medicine and hygiene will be inaugurated in Rome, which will gather all that may practically interest physicians and specialists. A special committee has already issued the coöperation of all the most important manufacturers of the world.

Hotels.--All the first and second-class hotels of the Italian capital will afford to the members, during their stay, all desirable comforts.

WORLD'S COLUMBIAN DENTAL CONGRESS.

[*Continued from page 171.*]

Georgia.—S. B. Barfield, Chairman, Macon; H. H. Johnson, Secretary, Macon; John H. Coyle, Thomasville; W. C. Wardlaw, Augusta.

Idaho.—S. A. Mulkey, Chairman, Moscow; John H. McCallie, Moscow; A Boston, Lewiston.

Illinois.—J.W. Cormany, Chairman, Mt.Carroll; C. N. Johnson, Chicago; J. J. Jennelle, Cairo.

Indiana.—S. B. Brown, Chairman, Fort Wayne; J. E. Cravens, Secretary, Indianapolis; E. J. Church, Laporte; Thomas S. Hacker, Indianapolis; J. W. Jay, Richmond; P. G. C. Hunt, Indianapolis; R. W. Van Valzah, Terre Haute.

Iowa.—C. J. Peterson, Chairman, Dubuque; L. K. Fullerton, Secretary, Waterloo; S. C. Hatch, Sioux City.

Kansas.—L. C. Wasson, Chairman, Topeka; C. E. Esterley, Lawrence; Wm. H. Schulze, Atchison.

Kentucky.—C. G. Edwards, Chairman, Louisville; Chas. E. Dunn, Louisville; F. Peabody, Louisville.

Louisiana.—Joseph Bauer, New Orleans.

Maine.—D. W. Fellows, Chairman, Portland; Edmund C. Bryant, Pittsfield; Henry A. Kelly, Portland.

Maryland.—E. P. Keech, Chairman, Baltimore; A. J. Volck, Baltimore; Edward Nelson, Frederick.

Massachusetts.—D. M. Clapp, Chairman, Boston; W. H. Potter, Secretary; Eugene H. Smith, Boston; D. B. Ingalls, Clinton; S. G. Stevens, Boston; R. R. Andrews, Cambridge; L. D. Shepard, 330 Dartmouth Street, Boston; George A. Maxfield, 390 High Street, Holyoke; James H. Daly, 29 Hollis Street, Boston.

Michigan.—C. S. Case, Chairman, Jackson; Geo. L. Field, Detroit; F. L. Owen, Grand Rapids.

Minnesota.—T. E. Weeks, Chairman, Minneapolis; M. G. Jenison, Minneapolis; C. H. Robinson, Wabasha.

Mississippi.—Morgan Adams, Chairman, Sardis; W. E. Walker, Secretary, Bay St. Louis; R. K. Luckie, Holly Springs; G. B. Clements, Macon; J. D. Miles. Vicksburg.

Missouri.—C. L. Hungerford, Chairman, Kansas City; A. H. Fuller, St. Louis; J. D. Patterson, Kansas City.

Montana.—C. S. Whitney, Miles City;

Nebraska.—H. T. King, Chairman, Fremont; A. W. Nason, Omaha; H. J. Cole, Norfolk; H. C. Miller, Grand Island; I. W. Funck, Beatrice.

Nevada.—A. Chapman, Chairman, Virgiuia City; M. A. Greenlaw, Reno; S. S. Southworth, Carson City.

New Hampshire.—C. W. Clements, Chairman, Manchester; G. A. Young, Concord; C. H. Hayward, Peterborough; Wm. Jarvis, Claremont; B. C. Russell, Keene; W. R. Blackstone, Manchester.

New Jersey.—S. C. G. Watkins, Chairman, Mont Clair; B. F. Luckey, Patterson; Charles A. Meeker, 29 Fulton Street, Newark; R. M. Sanger, East Orange.

New York.—John I. Hart, Chairman, New York; K. C. Gibson, New York; W. Carr, New York; M. L. Chaim, New York; Chas. Butler, Buffalo; F. A. Remington, New York; F. C. Walker, 118 Clinton St., Brooklyn.

North Carolina.—V. E. Turner, Chairman, Raleigh; J. F. Griffith, Secretary, Salisbury; J. H. Durham, Wilmington.

North Dakota.—S. J. Hill, Chairman, Fargo; E. M. Pierce, Secretary, Hillsboro; S. P. Johnson, Grand Forks; W. O. Depuy, Bismarck; H. S. Sowles, Wahpeton.

Ohio.—J. R. Callahan, Chairman, Cincinnati; H. F. Harvey, Cleveland; M. H. Fletcher, Cincinnati; L. E. Custer, Dayton; A. F. Emminger, Columbus; C. H. Harroun, Toledo.

Oklahoma Territory.—D. A. Peoples, Chairman, Guthrie; G. F. Dean, Oklahoma City; J. S. Nickolson, El Reno.

Oregon.—S. J. Barber, Chairman, Portland; E. G. Clark, Secretary, Portland; J. R. Cardwell, Portland.

Pennsylvania.—L. A. Faught, Chairman, Philadelphia; J. A. Libbey, Secretary, Pittsburg; C. S. Beck, Wilkesbarre.

South Carolina.—Thos. T. Moore, Chairman, Columbia; W. S. Brown, Charleston; A. P. Johnstone, Anderson; B. H. Teague, Aiken.

South Dakota.—O. M. Huestis, Chairman, Aberdeen; C. W. Stutenroth, Watertown; F. W. Blomiley, Sioux Falls.

Tennessee.—H. W. Morgan, Chairman, Nashville; B. S. Byrnes, Memphis; W. H. Richards, Knoxville; S. B. Cook, Chattanooga; H. E. Beach, Clarksville.

Texas.—W. R. Clifton, Chairman, Waco; G. M. Patten, Galveston; Tom Robinson, Houston; Geo. S. Staples, Sherman; T. L. Westerfield, Dallas; H. J. McBride, Tyler.

Utah.—A. S. Chapman, Chairman, Salt Lake City; A. B. Dunford, Salt Lake; F. W. Baker, Ogden.

Vermont.—G. F. Cheney, Chairman, St. Johnsbury; Thomas Mound, Rutland; R. M. Chase, Bethel.

Virginia.—J. Hall Moore, Chairman, Richmond; W. W. H. Thackston, Farmville; Jos. R. Woodley, Norfolk; E. P. Beadles, Danville; T. H. Parramore, Hampton; D. W. Rust, Alexander.

Washington.—W. E. Burkhardt, Chairman, Tacoma; F. P. Hicks, Tacoma; J. C. Grasse, Seattle.

West Virginia.—H. H. Harrison, Chairman, Wheeling; Jno. H. McClure, Wheeling; H. K. Jones, Parkersburg; George I. Keener, Grafton; J. N. Mahan, Charleston.

Wisconsin.—B. G. Maercklein, Chairman, Milwaukee; C. C. Chittenden, Madison; Geo. H. McCausey, Janesville.

Wyoming.—R. J. Gardenier, Chairman. Laramie; A. F. Thode, Rawlins.

Committee No. 9. Committee on the History of Dental Legislation in This and Other Countries.

It is expected that this committee will collect the data relating to Dental

Legislation in all the countries of the world, from the beginning to the present time, and present a full report to the Congress.

William Carr, Chairman, 35 West Forty-sixth St., New York; Paul Dubois, 2 Rue d'Amsterdam, Paris, France; Dr. F. Busch, Alexanderuber 6. N. W. Berlin, Germany; J. H. Mummery, L.D.S., 10 Cavendish Square, London, England; M. Etcheparaborda, Buenos Ayres, South America; C. Stoddard Smith, 34 Washington St., Chicago, Illinois; S. R. Salazar, Lima, Peru; W. F. Rehfuss, 1224 Walnut St., Phildelphia, Pennsylvania; Dr. Theodore Frisch, Obere Zaune, 10, Zurich, Switzerland; E. Palmer, Main and Fulton, Sts., La Crosse, Wisconsin; G. W. Copp, Durango, Colorado; Walter S. Leaming, Cape May, New Jersey; R. A. Holliday, 33½ Whitehall St., Atlanta, Georgia.

Committee No. 10. Auditing Committee.

Duties of this committee will be the auditing of all accounts and bills of the Congress preparatory for the signatures of the Chairman and Secretary of the General Executive Committee.

L. D. Shepard, Chairman, Boston, Massachusetts; R. R. Andrews, Cambridge, Massachusetts; Chas. A. Meeker, Newark, New Jersey.

Committee No. 11. Committee on Invitation.

The duties of the Committee on Invitation shall be to invite such scientific persons residing in the United States and foreign countries who are not members of the profession, but who by their recognized attainments in special departments of science, would add interest to the meeting. They shall also have the authority to invite such dentists of high standing and reputation in foreign countries as may be agreed upon by a majority of the committee, and a card from the Chairman of said Committee to the Chairman of the Committee on Registration shall be deemed evidence of the reputability of the holder thereof to entitle him to membership in the Congress, and they shall furnish the Committee on Membership with a list of the names and residences of those invited.

W. C. Barrett, Chairman, 208 Franklin St., Buffalo, New York; E. T. Darby, 1513 Walnut St., Philadelphia, Pennsylvania; S. G. Perry, 46 West Thirty-seventh St., New York; W. C. Wardlaw, Augusta, Georgia; S. W. Dennis, 81 Flood building, San Francisco, California; J. D. Patterson, Kansas City, Missouri; Thomas Fillebrown, 264 Boylston St., Boston, Massachusetts; Thomas T. Moore, Columbia, South Carolina; George B. Steel, 723 Main St., Richmond, Virginia.

Committee No. 12. Committee on Membership.

The duties of Committee on Membership shall be to pass upon all applications for membership which may be referred to them by the Committee on Registration or the Treasurer.

The membership shall consist of legally qualified and reputable dentists (as defined in the Code of Ethics of the American and Southern Dental Association) residing in the United States, and such other scientific persons as may be invited by the Committee on Invitation. Each and every member to be entitled to one copy of the transactions.

All dentists residing in foreign countries who desire to acquire membership in the Congress will file their application with the Honorary President or Vice Presidents of their respective countries who are empowered to pass upon their eligibility.

When applications are satisfactory to the Honorary President and Vice Presidents or a majority of them in said country the names so agreed upon shall be transmitted by July 15th, 1893, to the Chairman of the Committee on Registration who will proceed to issue a membership card without further reference, whether they reside in the United States or elsewhere.

Edmund Noyes, Chairman, 65 Randolph St., Chicago, Illinois; B. F. Luckey, Patterson, New Jersey; E. S. Chishholm, Tuscaloosa, Alabama; C. M. Bailey, 28 Syndicate Block, Minneapolis, Minnesota; Daniel N. McQuillen, 1628 Chestnut St., Philadelphia, Pennsylvania; E. L. Townsend, 133½ South Spring Street, Los Angeles, California; C. E. Hussey, Biddeford, Maine; J. J. Pitts, 171 State Street, Brooklyn, New York; J. Frank Mariner, Forty-third and Lake Avenue, Chicago, Illinois.

Committee No. 13. Committee on Educational and Literary Exhibits.

It is desired to have exhibits of a character that will show the results obtained by the various methods of dental education both in the past and up to the present time. Also an exhibit of the literary work of the profession to date.

J. J. R. Patrick, Chairman, Belleville, Illinois; J. Y. Crawford, Nashville, Tennesee; A. H. Fuller, 2602 Locust Street., St. Louis, Missouri; C. A. Brackett, 102 Truro Street, Newport, Rhode Island; D. M. Sabater, 107 East Thirtieth Street, New York, New York; H. G. Mirick, 156 Clinton Street, Brooklyn, New York.

Committee No. 15. Committee on Clinics in Operative Dentistry and Oral Surgery.

It is expected that this committee will make every effort to secure operators to demonstrate any important or new methods of practice and secure material for Operative Clinics in Oral Surgery at the various hospitals.

C. F. W. Bodecker, Chairman, 60 East Fifty-eighth Street, New York; John S. Marshall, Vice Chairman, Venetian Building, Chicago, Illinois; Arthur B. Freeman, 580 West Madison Street, Chicago, Illinois; Henry W. Morgan. Nashville, Tennessee; William Crenshaw, Atlanta, Georgia; T. L Gilmer, 55 Thirty-third Street, Chicago; S. C. G. Watkins, Mt. Clair, New Jersey; M. C. Gottschaldt, 102 East Thirty-first Street, New York, New York; Dr. R. Heide, 3 Rue d'Argenteuil, Paris, France; J. G. Reid, 70 Dearborn Street, Chicago, Illinois; B. D. Wickoff, 1000 Masonic Temple, Chicago, Illinois; F. T. Breene, Iowa City, Iowa; N. S. Hoff, Ann Arbor, Michigan; J. H. Gaskill, 1313 Arch Street, Philadelphia, Pennsylvania; J. M. Norman, 1126 Fifteenth Street, Denver, Colorado; James Goodwillie, 73 West Forty-sixth Street, New York, New York; G. S. Salomon, Masonic Temple, Chicago, Illinois; G. V. I. Brown, Duluth, Minnesota; P. T. Smith, Denver, Colorado; R. G. Richter, Milwaukee.

Committee No. 15. Committee on Prosthetic Dentistry.

The duties of this committee will be of the same character as that of Committee No. 14, only the work will be confined to Prosthetic Dentistry.

S. H. Guilford, Chairman, 1628 Chestnut Street, Philadelphia, Pennsylvania; L. P. Haskell, 211 Wabash Avenue, Chicago, Illinois; A. P. Johnstone, Anderson, South Carolina; W. N. Morrison, 1401 Washington Avenue, St. Louis, Missouri;

Fred C. Barlow, 646 Jersey Avenue, Jersey City, New Jersey; J. Hall Lewis, 1309 F Street, N. W., Washington, D. C.; A. O. Hunt, Iowa City, Iowa; R. R. Freeman, Nashville, Tennessee; E. S. Gaylord, New Haven, Connecticut; Harry Rose, L. D. S., 59 Queen Anne Street, Cavendish Square, London, England; F. H. Balkwill, L. D. S., 3 Princess Square, Plymouth, England; J. R. Knapp, New Orleans, Louisiana; C. M. Richmond, 70 West Thirty-fifth Street, New York, New York; W. B. Ames, 70 State Street, Chicago, Illinois; G. Molyneaux, corner Seventh and Elm Street, Cincinnati, Ohio; C. V. Rosser, Atlanta, Georgia; John S. Thompson, Atlanta, Georgia; F. M. Shriver, Glenwood, Iowa; M. A. Bartleston, Barth Block, Denver, Colorado; C. H. Darby, St. Joseph, Missouri; W. H. Coffin, 94 Cornwall Gardens, South Kensington, London, England; W. Mitchell, 39 Upper Brook Street, London, England; C. A. Southwell, Milwaukee.

Committee No. 16. Local Committee on Arrangements.

Duties of this Committee will be to make arrangements for the accommodation of the various Committees and Clinics and perform other duties of a like character, and to work in connection with the World's Congress Auxiliary.

F. H. Gardiner, Chairman, 126 State St., Chicago, Illinois; C. N. Johnson, Opera House Building, Chicago, Illinois; D. B. Freeman, 4000 Drexel Boulevard, Chicago, Illinois; H. J. McKellops, 2630 Washington Ave., St. Louis, Mo; P. J. Kester, Chicago, Ill; L. L. Davis, Chicago, Ill.

Committee No. 17. Committee on Essays.

The Committee on Essays shall invite suitable persons to prepare papers for presentation to the meeting. The Essay Committee are requested to invite two Women Dentists to be confirmed by the General Executive Committee to prepare papers for the Congress.

E. C. Kirk, Chairman, Philadelphia, Pennsylvania; J. W. Wassall, Chicago, Illinois; A. H. Thompson, Topeka, Kansas; H. H. Johnson, 26 Second St., Macon, Georgia; L. G. Noel, Nashville, Tennessee; C. N. Pierce, 1415 Walnut St., Philadelphia, Pennsylvania.

Committee No. 18. Committee on the History of Dentistry in the United States.

The appointment of this Committee seemed necessary and important from the fact that in the work of Committee No. 8, there was collected a considerable amount of matter that should properly come under the management of a Committee like No. 18. So it was deemed best to appoint a new Committee to work with No. 8, and take charge of the special matter of the History of Dentistry in the United States.

J. Taft, Chairman, Cincinnati, Ohio; Louis Jack, 1533 Locust St., Philadelphia, Pennsylvania; F. T. VanWoert, Brooklyn, New York; F. J. S. Gorgas, Baltimore, Maryland; H. L. McKellops, 632 Sutter St., San Francisco, California; E. G. Betty, Cincinnati, Ohio; J. B. Patrick, Charleston, South Carolina; J. Hayhurst, Lambertville, New Jersey; F. H. Sutherland, Pueblo, Colorado.

Committee No. 19. Committee on Nomenclature.

It is desirable that this Committee present a plan by which an universal system of Nomenclature may be adopted by the Congress that would be acceptable to the profession of the entire world.

G. V. Black, Chairman, Jacksonville, Illinois; E. C. Kirk, corner Twelfth and Chestnut Sts.. Philadelphia, Pennsylvania; W. O. Kulp, Masonic Temple, Davenport, Iowa; J. Edwin Line, 20 Smith's Arcade, Rochester, New York; J. B. Hodgkin, New York Ave., N. W., Washington, District of Columbia; J. S. Cassidy, Covington, Kentucky; C. T. Stockwell, corner Main St. and Harrison Ave., Springfield, Massachusetts; Dr. A. Witzel, Hochstrasse 1, Essen, Germany; Dr. E. Richter, Chaussestrasse, I. a N., Berlin, Germany; Dr. J. V. Metnitz, Am Hoff 11, Vienna, Austria; O. Rosenthal, Leige, Belgium; P. Sidney Spokes, M.R.C.S., L.D,S., 59 Queen Anne St., Cavendish Square, London, W., England; Dr. E. Damain, 10 Rue Vivienne, Paris, France; Dr. H. J. Billeter, Weinplatz 3, Zurich, Switzerland; Dr. O. Ameodo, 15 Avenue de l'Opera, Paris, France; Dr. A. C. Hugenschmidt, 23 Boulevard Malesherbes, Paris, France.

Committee No. 20. Committee to Promote the Appointment of Dental Surgeons in the Armies and Navies of the World.

It is probably well known by the profession that for a number of years efforts have been made to appoint dental surgeons in the Army of the United States, so far without success; but it was deemed a matter of sufficient importance to appoint a committee to take charge of the matter who might by an organized effort obtain at least the data that would have an influence upon any movement in this direction, should it be desirable to take action now or at some future time.

M. W. Foster, Chairman, Baltimore, Maryland; B. Holly Smith, Baltimore, Maryland; George Cunningham, L. D. S.. 2 King's Parade, Cambridge, England; Dr. V. Gallipe, 3 Rue de L'Abbaye, Paris, France; Dr. Adolph Weil, Amalienstrasse 3, Munich, Germany; John E. Grevers, Oude Turfmarkt, 13, Amsterdam, Holland; Dr. E. DeTrey, Vevey, Switzerland; Dr. O. Zsigmondy, Reichrathplatz 2, Vienna, Austria; A. Mela, Salita Santa Canterino I. Genoa, Italy; Dr. V. Haderup, Copenhagen, Sweden; A. J. Chrustchow, Newsky 45. St. Petersburg, Russia; Alex McG. Denham, Calle Monjitas 68¾, Santiago, de Chili; George B. Newland, 107 Calle Florida, Buenos Ayres, South America; Frank Woodbury, 137 Hollis Street, Halifax, Nova Scotia; Dr. Thomas Gaddes, London, England; A. H. Brookway, 13 Green Avenue, Brooklyn, New York.

Committee No. 21. Committee on the Care of the Teeth of the Poor.

It is common for the members of the medical profession in large cities, or in localities where it seems desirable, to devote a certain amount of their time in the interest of charity to relieve the diseases of the poor. It seems proper and right that the members of the dental profession should also do something in this way. The Executive Committee think that efforts should be made to suggest some practical plan to secure such services for the poor.

T. H. Parramore, Chairman, Hampton, Virginia; W. J. Barton, Paris, Texas; C. A. Brackett, Newport, Rhode Island; T. D. Ingersoll, Erie, Pennsylvania; W. M. Fisher, 136 Nethergate, Dundee, Scotland; M. V. Johnson, Holden, Missouri; J. Allen Osmun, Newark, New Jersey; C. S. Butler, 272 Main Street, Buffalo, New York; George E. Adams, South Orange, New Jersey: H. M. Smith, Colorado Springs, Colorado.

Committee No. 22. Committee on Biology and Bacteriology.

Suggestions for the work of this committee hardly seem necessary while under the direction of its Chairman, whose experience and knowledge of results that can be obtained from work of this character, are beyond question.

R. R. Andrews. Chairman, Cambridge, Massachusetts; M. H. Fletcher, Cincinnati, Ohio; W. X. Sudduth, 1206 Fourth Street, S. E., Minneapolis, Minnesota; Dr. W. D. Miller. W. Lennestrasse 3, Berlin, Germany; J. H. Mummery, M. R. C. S., L. D. S., 10 Cavendish Square, London, England; D. E. Caush, L. D. S., 63 Grand Parade, Brighton, England ; Dr. M. Morgenstern, Kreuzstrasse, 10, Baden Baden, Germany; George S. Allan, 51 West Thirty-seventh Street, New York; G. V. Black, Jacksonville, Illinois; Richard Chauvin, 72 Rue Lafayette, Paris, France.

Committee No. 23. Committee on Prize Essays.

It was decided by the Executive Committee of the Congress to offer a medal for the best paper on Dental Hygiene for public distribution. This committee was appointed to take charge of this matter, and its duties will be to decide upon the merits of the papers submitted, and to whom the medal shall be given.

Theodore Stanley, Chairman, Kansas City, Missouri; C. S. Stockton, Newark, New Jersey; E. P. Keech, 525 North Charles St., Baltimore, Maryland; Otto Arnold, 83 North High St., Columbus, Ohio; C. B. Rohland, 123 West Third St., Alton, Illinois.

Committee No. 24. Editorial Committee.

The duty of this committee will be to prepare matter for public distribution and for publication in the Dental Journals.

W. W. Walker, Chairman, New York, New York; A. O. Hunt, Iowa City, Iowa; L. D. Shepard, Boston, Massachusetts; J. Taft, Cincinnati, Ohio; J. S. Marshall, Chicago, Illinois; A. W. Harlan, Masonic Temple, Chicago, Illinois.

Subcommittee.

A. W. Harlan, Masonic Temple, Chicago, Illinois; A. O. Hunt, Iowa City, Iowa: John S. Marshall, Venetian Building, Chicago, Illinois.

Committee No. 25. Nominating Committee.

W. W. Walker, Chairman, New York, New York; A. W. Harlan, Chicago, Illinois; J. C. Storey, Dallas, Texas.

Hon. John T. Graves, of Rome, Georgia, will deliver an address of welcome in behalf of the people of the United States, at the opening of the Congress, the address to embrace a discussion of dentistry from the standpoint of public interest.

The time of meeting of the World's Columbian Dental Congress will be from Monday, August 14th, 1893, to Saturday, August 19th, 1893, inclusive.

ORDER OF BUSINESS.

August 14, Monday.—10:00 A. M.—Meeting of the General Executive Committee. 11:00 A. M.—Opening of the Congress, Reading of the Resolutions Creating the Congress by the Secretary General; Address of Welcome by John Temple

Graves, of Georgia. Responses: Responses from Foreign Countries; Address of the President; Adjournment. 2:30 P. M.—Papers to be read in the Sections. 5:00 P. M. –Adjournment.

August 15, Tuesday.—9:00 A. M.—Clinics. 10:00 A. M.—Meeting of the General Executive Committee. 12:00 M.—Address before the whole Congress. 1:00 P. M.—Adjournment. 2:30 P. M.—Papers to be read in Sections. 5.00 P. M.—Adjournment. 8:00 P. M.—Bacteriological Exhibit.

August 16, Wednesday.—9:00 A. M.—Clinics. 10:00 A. M.—Meeting of the General Executiove Cmmittee. 12:00 M.—Address before the whole Congress. 1:00 A. M.—Adjournment. 2:30 P. M.—Garden Party. 2:30 P. M.—Garden Party. 2:30 P. M.—Garden Party. 8:00 P. M.—Biology, Lantern Exhibit. 8:00 P. M.—Conversazione. 8:00 P. M.—Conversazione. 8:00 P. M.—Conversazione.

August 17, Thurday.—9:00 A. M.—Clinics. 10:00 A. M.—Meeting of the General Executive Committee. 12:00 M.—General Address before the whole Congress. 1:00 P. M.—Adjournment. 2:30 P. M.—Papers before the Sections. 8:00 P. M.—Public Address under direction of World's Congress Auxiliary.

August 18, Friday.—9:00 A. M.—Clinics at Hospitals and at the Art Institute. 10.00 A. M.—Meeting of the General Executive Committee. 12:00 M.—General Address before the whole Congress. 1:00 P. M.—Adjournment. 2:30 P. M.—Papers before the Sections. 8:00 P. M.—Dinner to the whole Congress. (Subscriptions by members from the United States only.)

August 19, Saturday.—10:00 A. M.—Visit in a body to the Medical and Dental Exhibits at the World's Fair Grounds. 12:00 M.—Closing Addresses to the Congress. Luncheon by the members in the Restaurant. (Names to be supplied.)

COMMITTEE ON EXHIBITS WORLD'S COLUMBIAN DENTAL CONGRESS.

Important Notice.

The Committee on Exhibits for the World's Columbian Dental Congress desire to obtain rare specimens of growths, abnormalities, casts, illustrations of methods, instruments and appliances, both ancient and modern, whereby the growth of the profession may be shown from its early infancy up to the present time. They also desire to exhibit an ideal library, operating-room and laboratory. And to this end earnestly request all members of the profession, together with dental dealers and publishers to loan them any specimens, instruments, appliances, books, photographs, or pictures of societies and eminent men of all countries, together with anything and everything that will be of interest to any dentist from any part of the world. They will pay all transportation charges on such exhibits to Chicago and return, and will insure same while on exhibition if desired. Chas. P. Pruyn, Chairman, 70 Dearborn Street, Chicago, Ill.; Arthur E. Matteson, 3700 Cottage Grove Avenue, Chicago, Ill.; E. M. S. Fernandez, 34 Washington Street, Chicago, Ill.; M. L. Rhein, 104 E. Fifty-eighth Street, New York, N.Y.; A. W. McCandless, 1001 Masonic Temple, Chicago, Ill.; R. C. Young, Anniston, Alabama; James Chace, Ocala, Florida; W. A. Campbell, Gold and Fulton Streets, Brooklyn, N. Y.

Address all communications to

Dr. A. W. McCandless,
Secretary,
1001 Masonic Temple, Chicago, Ill.

OBITUARY.

DR GEORGE WATT.

On Thursday morning, February 16th, Dr. George Watt, the editor of the *Ohio Journal of Dental Science*, passed away at Xenia, Ohio. Dr George Watt was born on March 14th, 1820, on a farm eight miles east of Xenia. His father, Hugh Watt, was born in the north of Ireland, of Scotch parentage; his mother was a native of western Pennsylvania, and was of Scotch parentage also. He remained at the family home till October, 1835, when he left, and went to Adams county, O , to enter a boys' academy; remaining in the academy two years he engaged in teaching. In 1840 he entered a college at Ripley, Brown county, O., and remained about a year; leaving there in 1841, returned to Greene county, and there engaged in teaching and the study of medicine, in which he had the late Dr. Samuel Martin, of Xenia, for his preceptor. He entered the Medical College of Ohio, in 1846, and graduated in March, 1848.

April 17th, 1845, he was married to Miss Sarah Jane McConnell.

After the completion of his medical course he continued the practice of his profession in Indiana about one year.

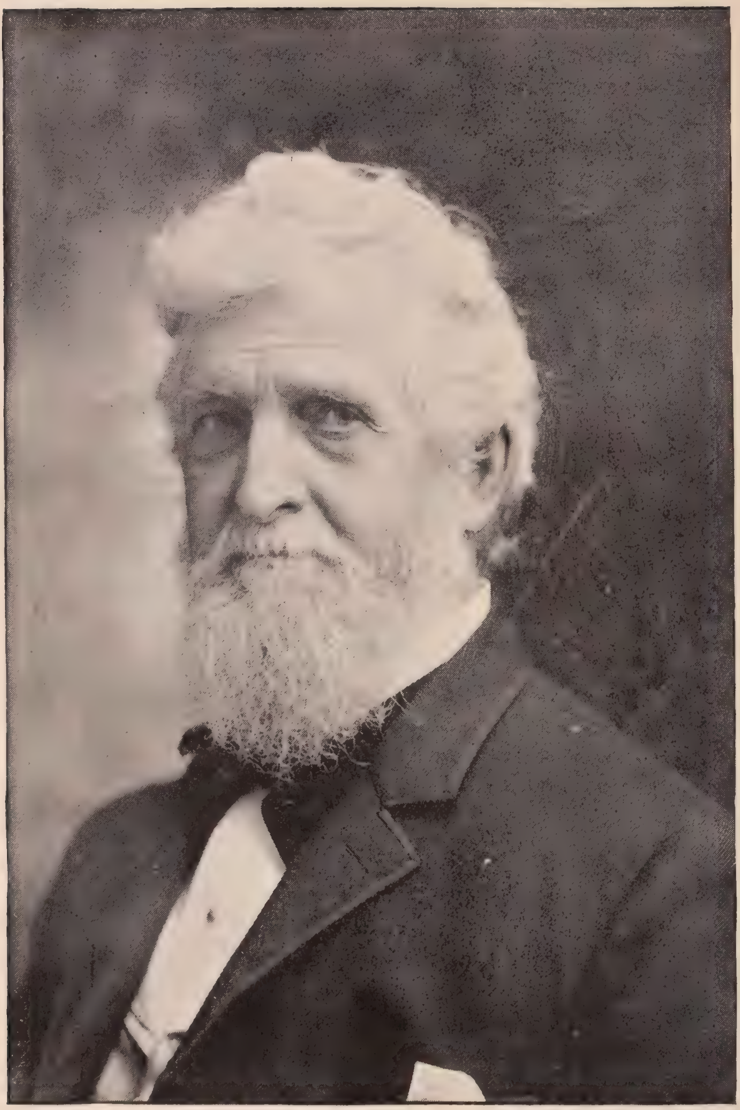
In 1852 he entered upon the study of dentistry, then formed a copartnership with J. Taft, of Xenia, Ohio. One branch of science to which Dr. Watt had given much attention, during and after his medical course, was chemistry; he had for his preceptor that noted chemist and philosopher, the late lamented Professor John Locke.

He graduated with his class, receiving the degree of Doctor of Dental Surgery, at the close of the term of 1854.

Immediately after this he resumed the practice of dentistry with Dr. Taft; in 1855 he was elected Professor of Chemistry and Metallurgy in the Ohio College of Dental Surgery, which position he occupied for several years.

With Dr. Taft he became the owner and editor of the *Dental Register of the West*. This relation was maintained for many years and was only relinquished when Dr. Watt's failing health rendered it imperative. But he has always, and even after this severance, been a liberal contributor to the literature of the profession.

Dr. Watt had passed his three score years and ten, in spite of the fact that he was for many years a great physical sufferer from exposure during the War of the Rebellion. Dr. Watt, for a period of more than forty years, has been a conspicuous figure in dental societies as a teacher and journalist, and his great abilities as a dentist, gave him a renown above that of the dental practitioner. Like Liebig, his theories have not all stood the test of time, still he was a factor and a potent one in settling the theory of dental caries. His chemical essays are good reading now, and will link his name with the efforts to discover the true causes of caries. Dr. Watt was a man of large physique and pleasant manner, a most forcible extemporaneous speaker, with a clear grasp of the subject under discussion. For many years he was one of the editors of the *Dental Register*, and professor of chemistry in the Ohio College of Dental Surgery. He retired from the active practice of dentistry ten or twelve years ago to edit the *Ohio Journal*. His life was a busy one, and his influence will long be felt as a stimulus to those he came in contact with to take broader views of life, and participate in its discussion. *Requiescat in pace.*



W. W. Allport

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THE OPERATIVE AND THERAPEUTIC TREATMENT OF TEETH IN WHICH THE PULP CHAMBER IS PENETRATED.

BY EDMUND NOYES, D. D. S., CHICAGO, ILL.

"A tooth that has ached deserves to be killed."
"No pulp that is alive should ever be destroyed."

These two statements represent the extremes of opinion respecting the treatment to be given to living pulps that have become exposed or so nearly so as to receive marked irritation from external agents. The first I heard announced by a good and well-known man at the meeting of the Northern Illinois Dental Society last October, and goes but little farther than the expressed opinion of a good many at the present time. The second comes pretty near expressing the sentiment of many good men about twenty years ago, and does express that of one Chicago man the last time I heard him say anything about it.

Brief aphorisms like these, that may be almost universally applied, are very attractive, but they seldom fairly represent the truth. The fact that men can be found to enunciate two like these, at antipodes to each other, relating to the same subject, is presumptive evidence that the truth lies at various places between the two and must be determined for each case separately by the exercise of knowledge, good judgment and careful attention to the circumstances relating to it.

When a tooth is before us for treatment in which the pulp is

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*Read before the Odontological Society, Chicago.

still alive, but has been more or less injuriously affected by the action of external agents upon it, this question of its preservation or destruction is at once presented for determination, and so many circumstances, difficulties, dangers and probabilities must be considered and given their proportionate importance in relation to it that the decision is not always easy, and in many instances at least, it cannot be expected that there will be entire agreement among all good practitioners.

The general grounds upon which an opinion should rest may be briefly stated, and every one must weigh and measure them for himself in their application to individual cases.

Pulps which have not been quite uncovered but have become somewhat irritated and perhaps occasionally painful, from the effects of thermal changes or the irritations caused by the contents of the carious cavity, conveyed through a thin layer of dentine, whether sound or considerably softened by decalcification, may almost always be saved. There may be a combination of adverse circumstances that will occasionally justify the extirpation of even such pulps as these, as for instance, if the decay is such that there must be a very large mass of filling in close proximity to it, and a cavity so situated or shaped as to make it impossible to interpose any appreciable amount of nonconducting material, especially if there be added to this an unfavorable constitution or condition of health, with such age that the pulp is no longer of very great value to the tooth. There may be a few instances in which extreme difficulty to find secure anchorage for a filling may be allowed to have some influence upon the decision whether to save or destroy. It may be inferred by some that if any of the pulps just described, which have not been wounded, and are in comparatively favorable condition; may be destroyed with propriety, then *all* those which are actually exposed, or have become more seriously irritated or inflamed, should be extirpated without hesitation, but this is far from being the case.

Age is the most important consideration relative to the necessity of the pulp to the welfare of the tooth. We occasionally find a pulp exposed so soon after the eruption of the tooth that the root is not fully developed and the opening through which the pulp vessels enter too large to be called a foramen, being still the full size of the pulp canal. If such a pulp be removed the opportunity for complete structural development is forever lost, both as respects the unformed end of the root, and the proper completion of the calcification of the dentine. Of course in such cases every possible effort should be made to save the pulp and even desperate chances may be taken if there is a fair opportunity to watch the cases; the loss of such pulps being usually followed by the loss of the teeth either immediately or in a few years. Pulps which have been previously free from pain and are freshly exposed by an aseptic instrument may almost always be saved if carefully treated, and there is a fair opportunity to give them suitable protection against the force of the operation and from thermal changes afterward, but if no care has been taken to disinfect the carious cavity, and the instrument happens to plunge somewhat into the substance of the pulp instead of merely scratching the surface, the probability is that it will suppurate or die from the effects of inflammation, because it will not be practicable to certainly follow with disinfectants so deeply as the infection may have been carried by the instrument. A large proportion of such exposures may therefore be wisely followed by an application of arsenic.

If exposure of the pulp is complete, of considerable extent and of such duration as to cause chronic irritation, the cases are very few indeed in which the attempt for its preservation is worth while. I can think now of but two cases, those of teeth so young that the life of the pulp is essential to the preservation of the tooth for any considerable time, and those in which the cavity of decay is so situated that no use can be made of it as a channel through which to extirpate the pulp and fill the roots. Either of these cases will sometimes justify taking desperate chances.

An important reason against the preservation of doubtful pulps, except when especially desirable on other grounds, is their observed intolerance of large masses of metal in close proximity. This manifests itself sometimes by their death, (perhaps very soon, or, perhaps, only after a number of years), sometimes by neuralgic pains, more or less severe, and of longer or shorter continuance, and occasionally, especially if there are a number of large fillings near together, quite impossible to locate with certainty until disease or death proceeds far enough to cause some peridental irritation. Sometimes it appears to be the cause of the formation of pulp stones.

The comparative certainty of results and immunity from subsequent trouble that usually attends the extirpation of pulps and filling of root canals if the operations are made with intelligence, skill and patience, has operated very powerfully in late years to discourage the attempts to save alive, diseased or doubtful pulps.

The discussion of pulp capping used to be carried on as if it were about all included in the problem of treating the pulp and making the operation in such a way that death would not follow at once, or very soon. The fact is that a great many cases in which the pulp lives long enough in apparent health to show that the operation of capping was perfectly successful, either die afterward or give rise to so much neuralgic pain, often difficult or impossible to locate, as to leave no reasonable question that extirpation would have been better in the first place.

It will be inferred that the writer goes a long way toward a belief in the aphorism, "A pulp that has ached deserves to be killed," but the exceptions are rather numerous and some of them very important.

Not very much need be said about the procedures in capping pulps, they have been so often and sometimes so well described. If there has been actual exposure, and often if there has not, it is necessary to treat the exposed pulp or the cavity of decay antiseptically before the operation, and time is an essential element in this treatment. Mild, diffusible, nonescharotic and noncoagulating agents should be used, and unless everything softened has been removed from the cavity, and the exposure is freshly made by the instrument and a mere scratch upon the surface, and there is no history of previous pain, the antiseptic should be closed in by a tight temporary filling and left for some days. This affords the necessary probation to see what disturbances may arise in the pulp, and gives time for the antiseptic or disinfectant to penetrate the entire territory involved. Oil of cloves, eugenol, eucalypti extract, and, perhaps, a rather large number of other things will answer the purpose. Oil cassia or cinnamon is very irritating and should be used with more caution, but may sometimes be useful. Carbolic acid and the whole list of powerful escharotics and coagulants should be kept out of these places and, for the most part, out of pulp chambers and root canals generally. The capping may be done in many of the ways often described, but equally well by warming a flattened pellet of Hill's stopping (the tougher forms of gutta-percha are not so good), touching one surface with eucalypti extract and gently laying it over the exposure, fitting it down upon the floor of the cavity with very gentle pressure. This should be covered with phosphate to make a hard cap to protect the pulp from the force of the subsequent operation.

I will not attempt an orderly and complete presentation of the subject of the extirpation of pulps and root fillings, for that would make this paper much too long, but will briefly refer to principles and methods of procedure, to some of the difficulties to be encountered, and some of the lessons of clinical experience.

Of course arsenic in some form is the agent of devitalization, and I have found most satisfaction with some one of the formulas containing cocaine. The essentials to insure freedom from pain after the application, appear to be absence or reduction of acute inflammation, or somewhat free bleeding, and avoidance of pressure upon the surface of the pulp. The latter is not always perfectly easy, for it is still more important to have arsenic tightly sealed in the cavity so that it cannot escape upon the gum than to have the patient free from subsequent pain. It can usually be done with some of the softer forms of gutta-percha compounds, by using sufficient care, and there are many cases in which a slight amount of pressure will not cause pain, either at the time or subsequently.

I will not speculate upon the action of arsenic. I know nothing about it except that it will kill the portion of pulp in contact with it, and will usually kill the whole pulp. The arsenic should be removed in one or two days, chiefly on account of the danger that the temporary stopping over it may happen to leak or become displaced, and the possibility of that should be entirely removed as soon as the arsenic has done its work. Theoretically I can see no reason why the action of the arsenic should not sometimes extend beyond the foramen, but clinically I have never seen a case in which I felt *sure* that peridental irritation was caused by arsenic, and there are so many other possible causes for such irritations that I am very slow to believe it due to arsenic in the cases that are attributed to it. The destructive action of arsenic does sometimes appear to stop within the tooth, at points varying in different cases from the apex almost to the surface of application, so that after removing the arsenic at the end of forty-eight hours, and then keeping a dressing of tannin (in either glycerine or alcohol) in contact with it a week or more longer, instead of finding the expected dead and hardened tissue sloughed from the living exactly at the apex, we find a portion only to have separated, and the pulp in some portion of one or more of the root canals very much alive and exceedingly sensitive, or what is equally unsatisfactory, it may appear to be very sensitive without showing any other signs of life. I say *appear* to be sensitive rather than to say *is* sensitive, because it is not always easy to determine the location of sensation, or to be sure whether it be just the portion in contact with the end of the broach where the sensation is felt, or considerably beyond that toward the apex, or even beyond the apex of the root. Wherever it may be it is often very troublesome, and I always hesitate, and usually refuse to reapply arsenic, unless bleeding indicates unmistakably the existence of vitality, and I do not often do so even then. In such cases, though a barbed broach or a large one may give great pain, it is sometimes practicable to carry a fine one along the side of the canal to the apex. If that can be done, by dipping the end in strong carbolic acid and carrying it up repeatedly till the acid has reached the end, the escharotic and anæsthetic effect combined will usually enable us to remove the tissue without further pain, (and this is almost the only purpose for which I ever put strong carbolic acid into a pulp chamber or root canal except in a few cases in temporary teeth). Not very infrequently it is better to renew the application of tannin, shut up the cavity, and wait, but in a few instances it appears as if the effect of the arsenic were more complete and satisfactory at the end of forty-eight hours than ever afterward. It being possible at that time to carry a broach carefully to the apex and the removal of the entire pulp will cause only the single twinge of breaking it at the foramen, or may not even that, while if removal is delayed a week or more, some part, more or less, of the tissue in the canals appears to have recovered from the benumbing effect of the arsenic and to grow more and more alive and sensitive the longer time is given to it. In other words, the arsenic has not killed the whole of the pulp. It is rather difficult to be quite positive on this point for we cannot very well try both plans on the same tooth, and can only judge by the analogy of apparently similar cases.

The removal of pulps and filling of root canals might easily occupy a paper too long to be read this evening. Different cases present all imaginable degrees of difficulty, from the simplest of operations to those which are quite impossible. There should be suitable instruments, experience and skill, and an expenditure of time and patience that often have little relation to the fee that can be collected. Reaming of the portions of canals nearest the pulp chamber may often be done with great advantage; sometimes it may be carried far on toward the foramen, but always requires close attention and watchfulness. About the only instruments I have used with any satisfaction are the Talbot reamers for opening the canals from the chamber a little way, in such cases as they can be made available, and the Gates or Glidden drills, and the only ones of the latter that I have ever got that were good for anything were made by the S. S. White Company. Others have had shanks too large or too small, too stiff or too soft, or the blades would not cut, and even the White instruments of this class are often faulty in temper. The Talbot reamers usually break if any lateral strain is put upon them, and I think I never saw a Glidden drill that did not lose its fine directing point the first time it encountered a curve in a root so as to be required to do any directing, but notwithstanding these defects they are about the only things that I could ever get very far into root canals with to do much good in the way of cutting. The drying of canals is accomplished by absorption upon cotton wound upon a broach, or by paper cones, followed by chemical action of something having affinity for moisture, like alcohol, chloroform, or some of the essential oils, with which the canals may be filled, and then wiped out repeatedly, or it may be done by conduction of heat from a bulb of hot metal through a wire inserted in the canal, like the Woolley or Evans root driers, or by inserting a wire in the canal and heating it by an electric current. In this, as in all other operations upon roots, the difficulty increases with the smallness or crookedness of the canals. Some form of gutta-percha is undoubtedly the best material for filling root canals that has yet been in general use. So far as heat can be used to produce the required plasticity, it is better than a solvent. I believe it is a common practice to fill canals with gutta-percha solution in chloroform, after moistening the walls with eucalyptol, and then insert cold, a round cone of gutta-percha, displacing so much of the thin solution as can be done in that way, but a round cone will seldom fit a root canal very well, and the subsequent evaporation or diffusion of the chloroform often leaves a seriously imperfect filling, as we have all observed in a sufficient number that we have had to remove. It is better to use a cone made very plastic by heat and pack it in with a hot wire, displacing as much of the chloroform solution as possible and evaporating a portion of the chloroform from the remainder by the heat, the object being in each case to use as small a proportion of the solution as practicable, and especially to make the portion of canal filling nearest the pulp chamber so tight as to be as near germ proof as possible, so that in case of leakage or loss of the crown filling, infection may not be able to enter the apical space through the root canals. This plan has the disadvantage of taking much more time than the other. (I have had a rather unfortunate propensity to discover that the best methods of operating often *do* take the most time.)

I like best myself a method still slower, perhaps, using eucalyptol as a solvent instead of chloroform.

For dental purposes the "pure volatile eucalypti extract," made by Sander & Sons, of Sandhurst, Australia, should always be used, and not the oil of eucalyptus sold in the drug stores. The canal is slightly moistened with eucalyptol and a warm cone of Hill's stopping, usually very small, is dipped in the eucalyptol and carried into the canal, then is churned into plasticity or semifluidity and at the same time worked up to the foramen with a Donaldson broach fine enough to go there. I cannot tell you how you may know when the material has reached the foramen, but a little watchful experience will teach you how to recognize the fact usually. We hear people speak as if it were the easiest and most certain thing in the world to know that, by the sensations of the patient, but I believe that test is entirely fallacious and unreliable. I have seen canals in which a fine broach wound with cotton could be carried to the foramen without sensation, respond sharply, so that the patient would wince and complain of the pain, upon the entrance of the filling into the canal, before the material or the instrument that carried it had gone one-third the distance from the pulp chamber toward the apex. The fact is that but little attention need be paid to sensation, unless it becomes seriously painful, until the material has been carried to the foramen. Then a moment or two of waiting will often cause the pain, (which is usually slight), to subside, and after that a renewal of it may be an indication that the pressure of the packing instrument is too great and the material is being forced through the foramen. It is a more common occurrence in my practice than I wish it were, to have teeth show some peridental irritation for a few days after filling their roots. I have found it very difficult to understand or explain. It is usually slight and transient, but occasionally amounts to serious pain, of considerable duration and sometimes accompanied by some swelling of the gums. All these cases have been quite free from pain or soreness for considerable time previous to filling, and have been tightly closed. I have not been able to account for it except on the supposition that some slight portion of the medicine used to make sure of perfect disinfection (often oil of cassia, but often only eucalyptol), has been pushed forward by the root filling through the foramen, and has irritated the peridental membrane. Doubtless in some cases also some portion of the filling is pushed through. These irritations are never followed by the formation of abscesses unless the filling is done before cure is complete, and it is very rare indeed that one of them makes any trouble afterward.

A method of root filling is described in the March *Cosmos* by Dr. Carl Theodore Gramm, by drying canals by an electric current and inserting a copper wire to the foramen, which is to remain permanently, and then placing wax or paraffin in contact with it and heating the wire by electricity till the wax is melted and follows the hot wire to the apex. If the wire can be certainly heated to the extreme fine point above the melting point of the wax so as to make sure that the hot wax goes far enough, such a method would seem to be very perfect and satisfactory. I believe Dr. Gramm operated at the St. Louis clinic and those who were there may have learned more of his method in a practical way than appears in the article in the *Cosmos**.

So much has been written and so well about the Herbst method of covering over and leaving the pulps in root canals, that I need not go over all the ground in detail. Supposing the operations, whatever they may be, completed in such a way that there is at the time no disease or infection of the peridental membrane or associated tissues, the rational and scientific consideration of the subject leads inevitably to the conclusion that the certainty and permanance of success in operations subsequent to the death of any portion of the pulp will bear a close correspondence to the perfection of the work in three particulars: first, the removal of all pulp tissue; second, the perfection and permanence of the canal fillings, and third, the tightness of the covering over the entrances to the canals from the pulp chambers ; the latter having reference to the possible carrying of infection through the canals by reason of the imperfection of the canal fillings. The clinical observation and experience of twenty-five years abundantly confirms and justifies such a theoretical conclusion. It is necessary, however, to find a plausible explanation for the undeniable fact that such operations as that of Dr. Herbst, and the better one described by Dr. W. R. Blackstone, of Manchester, N. H., who carefully removes all the pulp tissue and then lines the canal walls with a layer of iodoform, deposited from eucalyptol, and leaves them empty if small, and the portion near the apex empty in larger ones, taking pains never to carry a canal filling to the end of the canal; are successful enough to deceive those who practice them into the belief that they are as successful as can be made.

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*Dr. Harlan in the discussion said the operation was a failure at the clinic, the wax not going far enough.

The explanation is to be found in the perfect protection, for a time or permanently, of the root canals from the access of infection, and by the usual tolerance of the tissues surrounding the apex for the products of such slow decomposition as may go on in the canals in the absence of any access by external influences, whether such contents be remaining portions of the pulp or such fluid as may find its way in there if the pulp has been removed. We find the same thing happens occcasionally in sound teeth whose pulps have been killed by a blow, which have recovered from the immediate effects, and have remained comfortable, sometimes for years, and without the formation of an abscess, though the dead pulp has not been removed and has undoubtedly been decomposed to a greater or less degree. In these cases it would seem that the agents that produce decomposition must be inherent in the dead tissue or brought to it by the blood, probably the latter, and the process is certainly much slower and the products very much less poisonous to the living tissues than when access of air or the fluids of the mouth brings on putrefaction of the ordinary sort. In most of these cases the time comes sooner or later when they come to us with acute peridental inflammation and impending abscess. Whether this is determined by the blood becoming in such condition as to bring infection to them, or whether the slow and long continued adverse influences at last wear out the resistance of the parts so that they yield to influences they had hitherto been able to resist, or to both combined, I cannot tell. The facts are plain enough, and happen often also in apparently a similar way in case of teeth with unfilled or badly filled roots, only in these the source of infection is sometimes plain enough around a leaky filling, or through a new cavity of decay. In illustration I need only refer to the frequency with which we find abscesses sooner or later after operations of root filling upon buccal roots of upper molars, bicuspids with fine root canals and anterior roots of lower molars, as compared with the infrequency of finding them upon the incisors and cuspids, or upon any roots that can be easily and perfectly filled, and you all know that when we open such teeth for treating the abscesses we usually find that the fine canals are either unfilled or very imperfectly filled.

It will be urged that the Herbst method contemplates the retention of vitality by the pulps left in the canals, but, bearing in mind that the cobalt that he uses is a perfectly effective form of arsenic for the devitalization of pulps, it will be impossible to make any one who has watched the effects of arsenic upon tooth pulps, to believe that more than a very few of them will retain any vitality beyond a very few months at most. The cases shown to prove such vitality would appear to be teeth whose pulps had such a low vitality as accompanies deposits of secondary dentine or pulp nodules, and we know that such cases are more likely than any others to successfully resist the effects of arsenic, possibly because they are too sluggish to absorb it, or to distribute its effects through their substance.

It is to be expected that such operations as those of Herbst or Blackstone will make little or no trouble for a considerable time, but at the end of ten years such cases will surely show a much larger proportion of abscesses developed than an equal number in which every possible effort has been made to remove the pulp tissue and fill the canals to the foramen.

This paper is already too long, and the subjects of putrescent pulps and alveolar abscesses must be passed over very lightly. Two new plans for cleansing and sterilizing pulp canals have been proposed very recently. One by Dr. Emil Schrier, of Vienna, who uses some combination of metallic sodium, and potassium not sufficiently described in the translation of his article published in the January *Cosmos*. The action is very violent, as might be expected, resulting in the production of caustic soda and potash with the liberation of hydrogen, and the saponification of fats and oils, it was suggested in the discussion that there are no fats or oils in the pulp, but many of these cases have had open cavities of decay for some time, and such things may have been crowded into the pulp chamber and canals from the food and solution of albumen.* The other is described by Dr. E. C. Kirk (editor of *Cosmos*), in a paper read before the Second District Society, of New York, February 13, just past. The agent used is a solution of sodium peroxide which he says can be made to carry about 20 per cent of active oxygen, while 12 vol. peroxide of hydrogen contains only about 1.5 per cent. The liberation of oxygen, when introduced in foul canals, is very free, though not so rapid as in the case of solution of peroxide of hydrogen, and the action of the oxygen is supplemented by the saponifying effects of the caustic soda produced by the reactions in the moist canal. The article referred to relates more especially to the bleaching of teeth, but it would seem to be as applicable to the cleansing and sterilizing of foul canals as for bleaching. Whether any special caution in the use of such active caustics upon the dentine is necessary I cannot say. Dr. Kirk neutralizes the caustic alkali afterward with acid, and then washes thoroughly with water.

Dr. Ottolengui (also in March *Cosmos*) describes the use of caustic pyrozone (which is an etherial solution of peroxide of hydrogen, the strongest about 25 per cent). He uses this, however, with special reference to the suppression of pus formation, either in cases of pyorrhœa alveolaris or abscesses. This latter is not exactly new I think, but perhaps has not yet been very generally tried.

Whether any of these agents will supersede the use of the essential oils for sterilizing purposes in root canals and abscesses, I feel unable to foresee. I have come to regard oil of cassia or cinnamon, either pure, or in emulsion with water or solution of peroxide of hydrogen as a very efficient agent for the control of suppuration. Some care is requisite in regard to its irritant properties if used too freely in full strength, and too long left in contact with soft tissues.

The management of teeth whose pulps are dead before they are first presented for treatment is quite enough for a long paper by itself, and would probably have been better left out of this one altogether.

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* This was suggested in the discussion.

SOME HYGIENIC CONSIDERATIONS RELATING TO THE DENTIST HIMSELF.*

BY GARRETT NEWKIRK, M. D., CHICAGO, ILL.

This is a subject possessing interest for every dentist. Health has been considered by peoples of all ages as the chiefest blessing—how to preserve it the question of greatest importance. The inquiry of one concerning the health of another, as the first part of friendly greeting, must have been quite as ancient as the speech itself.

As the ancient Greeks had deities in charge of all the various interests of humanity, they were careful to provide a suitable guardian for health, in the person of Hygeia, the mythological daughter of Esculapius, the god of medicine. This relationship it would seem was slightly illogical, as health certainly existed before disease, and the means of health before the need of medicine. Rather then should Hygeia have been the elder sister of the god of medicine without whose aid and guidance he were quite helpless.

But it would be less profitable for us, perhaps, to seek a quarrel with the Greeks than to study for an hour some of the practical questions relating to Americans.

We will divide the conditions of health into two general classes—internal or inherent, and external. By the first we mean all those usually included by the term constitutional. By this word "constitutional" we mean all that the individual possesses in himself by virtue of *heredity*.

This is a very large subject, upon which one might write not one but many papers. We can only cast a glance upon it to-night, scarcely more than a glance of recognition, and pass on.

No two individuals in the world have the same heredity; no two look exactly alike, none are alike, even children of the same parents. The most striking thing about heredity is diversity. No two have the same susceptibilities to all external influences, nor the same internal resistances.

Therefore in the study of the question we are at once compelled to group and classify, by races, by clans, by families, by types, by temperaments.

We may find a plausible reason for these diversities in the great variety of conditions men must meet—differences of climate, modes of subsistence and the almost innumerable employments. By differences of faculty and temperament, men are adapted to the performance of every kind of work necessary to the most diversified and complex civilization.

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*Read before the the Chicago Dental Society.

In no direction, however, is heredity more strikingly manifested than in its relations to health and disease. With a few exceptions the latter is not directly transmitted, but the power (or the lack of it) to resist disease *is* hereditary. It belongs to the individual by virtue of his inherited constitution.

There are tendencies, or predispositions, favorable on the one hand or unfavorable on the other to health and length of life; there are by virtue of temperament, or family, or individuality, sometimes apparently by accident, certain weaknesses, vulnerable points—danger lines. Some of these are prohibitory of certain employments.

"No chain is stronger than its weakest link." Where the weakest link is, 'twere folly to place the greatest strain.

Here is a principle people often overlook in choosing their employments. The man with pulmonary weak tendencies becomes a clerk or jeweler's apprentice, or possibly a dental student, whereas he should live preferably much out of doors in some dry climate. The comsumptive resorts to the West and South are filled with such, many of them dentists who should never have been such.

It would be well if every intending student of dentistry were subject to a physicial examination, with an investigation of his heredity, the results of which if unfavorable, should determine his course in some other direction.

The business of the world is crowded with "misfits"—men who are where they ought not to be from lack of fitness—physically as well as mentally. Some with weak hearts are taking violent exercise—lifting heavy weights, competing for prizes in athletics, striving for highest rates of speed on bicycles, or possibly looking at their last coal or gas bills just after going up stairs.

The constitutional conditions of the individual establish certain limitations for him. There are things he may do, others which he ought not to do. Each man is his own problem to study and solve. He cannot safely adopt *in toto* another man's rules or habits. Right here many make serious mistakes. Because perchance they admire a certain person, they fancy they should do as he does, having a foolish fancy that they may resemble him by imitation; that the hours he keeps they may keep; what he eats they may eat; what he drinks they should drink. That if he smokes without apparent injury to himself, so may they.

Nothing could be more absurd. Every one should seek to understand rather his own limitations, and be governed by them. This includes the study of his own heredity. The weaknesses of his parents are quite likely to be his weaknesses; the causes which with them have been injurious should be avoided by himself. Whatever has blessed or cursed his ancestors would in all probability prove a blessing or a curse to him. Moreover, whatever he has found by experience to be beneficial or harmful, he is bound by rules of good sense to use or avoid, regardless of the example of others.

EXTERNAL CONDITIONS.

These are multiple and various, including the air we breathe, with all that air may possess of impurities, malaria, germs of disease, dryness or humidity, temperature; also light and degrees of light, natural and artificial; the question of food—its nature, fitness, mode of preparation, adaptation to climate and seasons, different employments, etc.

Passing by all these I shall devote the remainder of this brief paper to the consideration of

EXERCISE AND REST.

First, we recognize this principle, that to maintain the body as a whole in health, its various systems—bony, muscular, glandular, cerebro-spinal, circulatory and sympathetic nervous, and the various groups of organs must have action. An inactive organ or system either dwindles and shrinks, or it becomes the seat of disease. The circulation of the blood becomes sluggish, the vessels smaller, the temperature lowered, sensation abnormal, in an unused part.

Many of the employments in which men engage do not give the diversified action essential to the health of all the parts. Some are exercised possibly to excess, others very little or not at all. There are consequently inequalities of blood pressure, of local temperatures, of tissue changes.

Dentistry is one of these employments. By itself it does not give the exercise needed by the body as a whole.

The operative dentist works for the most part standing, but not in an easy and natural position. This is more or less strained, distorted and awkward. The operator by reason of the delicate character of his work realizes constantly the necessity of the utmost steadiness. Hence the bones, tendons, and muscles engaged in maintaining the special position of the body are often taxed to the utmost, with little opportunity for rest. The next time you are operating please observe how much effort you are making to hold the body still. This we do daily, but by habit without conscious attention.

Now this is not in accordance with Nature's usual plan. Even the heart, which might at first glance seem to prove an exception—the heart could not do its work without rest. It rests, auricle and ventricle alternately, fully one-third of the time between beats, sixty or more times each minute. In these short intervals, eight hours or more each day in the aggregate, nutrition is maintained in the organ itself which is just as much dependent upon the blood passing through it as the remotest organ of the body. If you wish another illustration of the necessity of rest, recall to your minds the old-time experiment among boys—that of seeing how long one can hold the arm horizontally, with or without a weight. We have all tried it, and have a vivid remembrance of the unendurable weariness, and entire lack of power which ensued in a few moments.

In dental operations it is not possible, I believe, to entirely avoid the strained positions and unequal excercise. But the amount varies greatly with different dentists, according as they take more or less pains in the adjustment of the chair and position of the patient.

The muscles too steadily excercised, are, first, the *extensors* of the trunk and lower limbs, (but these not equally) for holding the body in a rigid position, to afford a fixed basis for the accurate direction of the instrument in use. In the usual somewhat curved forward position of the trunk, certain of the abdominal and anterior chest muscles bear a part, with an accompanying tendency to very light breathing. The operator ought every now and then to pause long enough to throw his shoulders back, as he will instinctively if he gives himself the time, and freely expand the lungs The lower flexor muscles generally are but little exercised in a steady position of the chair, except in the use of a treadle engine, then of one limb only. The muscles of the upper part of the trunk and arms are not used with any vigor, as they would be for example in rowing, or chopping or sawing wood.

The determination of blood is of course to the parts most used, with a considerable tendency downward. The positions are not the most favorable for the return circulation, which presses heavily on the venous walls, so that if there be any beginnings of varicose veins in the limbs or abdominal regions, or a disposition to passive congestions of the kidneys or other organs, or of effusions into joints or cellular tissue, the conditions are likely to be aggravated.

The dangers are greater perhaps to the operater of heavy proportions, who remains more steadily in certain positions, being waited upon by an assistant to everything he needs, rather than the one of slighter build, more active, who waits much upon himself, especially if he goes often to the laboratory, and while there *sits*, as he should, at the bench. Other things being equal, the use of the inlay, by which we may often avoid a prolonged operation in the mouth is advisable, as a hygienic blessing to the dentist himself, without mentioning humanity toward the patient. I question if it is altogether an unmixed benefit for the dentist to operate exclusively at the chair and have his laboratory work all done by an assistant.

I wish to make a suggestion in passing that if dentists would make use more generally of a stool while operating, the benefits resulting to both muscles and nerves would be inestimable. For we must not forget in this connection the relation of our question to the brain and nerves.

There is special tention on nerves of the eye, also upon those which control and give steadiness to the hand, and those which govern all the overtaxed muscles. Special tax also upon that balance wheel of the organism which enables one to exercise patience and self-control; the overstrain of which is occasionally evidenced by irritability, and possibly ill-temper—always an evidence of weakness, either inherent or produced by overwork.

After advising shorter hours to those who are working more than six, advising the studied use of all the advantages offered by the best of chairs, the use of the stool and frequent changes of position while operating, what shall we say as to the hygienic remedies or foils of irregular exercise, outside of office time? What shall the dentist do to secure the best effects upon health, upon happiness and usefulness also which so largely depend on health? Fixed rules cannot be laid down. These will be varied by a thousand differences of heredity, physique, circumstances, surroundings, personal choices and tastes. We may state the principles involved and make a few suggestions.

It is manifest that our outside diversions should exercise most those muscles which during our office hours we have exercised least, and *vice versa.* Mere walking, it seems to me, is a form of exercise ill adapted to the purpose and with some people likely to do more harm than good. For one whose office is connected with his residence, it may be better to walk than not to be out of doors at all,but for exercise as rest it is not comparable with some other methods. Five minutes with a pair of oars, or a swinging axe, ten minutes with a wood-saw, or clubs, dumb-bells, or horizontal bar would give more action to the muscles which need it, determine more blood and heat and tissue change in neglected parts than an hour of walking, not to speak of the added labor given by the last named to parts already weary. Driving is better than walking, but still of a negative quality. It does not sufficiently exercise the muscles of the upper part of the trunk; the position is likely to be slightly stooped and opposed to free and full expansion of the chest. Horseback riding is much better than either where one is so situated as to take it. The appliances found in a gymnasium, used systematically, regularly, and with special care as to moderation, would be excellent.

The Bicycle. This modern machine as now perfected in the "safety," I am inclined to think one of the best, and probably the most generally available instruments for securing general exercise yet discovered, especially in cities. Those who have used it are practically unanimous in its praise. It certainly brings into play quite freely all the muscles of the body, equalizes the circulation and temperature, expands the chest, and the rider experiences an exhilarating sense of motion, said to be unequaled.

The danger ever present with those seeking recreative exercise is this: the temptation to forget the true object and overdo the matter, by trying to compete with others in speed. Attempts at high speed should never be made by the nonprofessional rower or rider. Otherwise the real object and benefit sought is surely defeated, and the man might better have remained quiet.

The disposition to secure the highest results as to mere mile-age covered in a certain number of minutes, is one of the fads of the day, both as to horses and men. It is receiving attention out of all proportion to its importance. The benefits are few if any; the injuries numerous and often serious.

I have admired the answer said to have been given by the Shah of Persia when invited to attend the Derby in England. "Wherefore should I go?" said he, "*It is already known to me that one horse can go faster than another.*" I would therefore impress on the minds of the brethren that whatever the form of exercise they may adopt, it should be taken with careful moderation, always remembering that the real object is hygienic and not competitive.

Outside of office hours the dentist should be careful of his eyes. He should not exercise them upon fine print, especially by poor light. He should not read upon moving trains and street cars, where the light is always insufficient, and subject to frequent changes, which, together with the motion of the paper before the eyes, severely strains the optic nerve itself, and the nerves and muscles of accommodation.

It were better when the eyes are weary to close them for a few moments, or to place them upon distant objects. The view of a landscape—trees, meadows, hills and vales, of distant sky and floating cloud, the far-off waves or ships on sea or lake—these all are restful exercises for the eye which has all day been engaged with the intricacies of dental operations.

As for those nerve centers kept especially active along with the eye and hand of the dentist, the surest way of giving them rest is to engage other centers in other sorts of work, and this will be accomplished by any suitable general exercise which the dentist may decide upon and find agreeable. Much will depend upon the last named consideration, the exercise agreeable, and choice will of necessity be governed largely by the taste and personal experience of the individual.

A change also of *mental* exercise is called for. One should leave the cares and vexations behind him when he closes his office door. This is not only necessary for his health but better also for his work on the morrow. The horse who walks all day in the furrow is not expected to eat and sleep in the furrow. He is given a comfortable stall, or better still, is turned out upon the grass beneath the stars.

We should not run our office wheels along our evening paths or through the dreams of night. The dentist who does this never enlarges his mental faculties as he ought. There are too many who do this. You will not find among such, one with a knowledge of history, another broadly scientific; one who has read Blackstone, or another who has studied well political economy, or yet another so well informed on general subjects as to make him companionable with men of learning. The mind itself needs exercise, which can never be obtained by measuring over and over, day and night, the same old grain and chaff with the same old peck measure.

There is a form of physical exercise which in my opinion has not received from dentists the attention it deserves. I doubt if there is one present who has in his mind at this moment that to which I refer—what is known as *massage.*

Possibly it has not occurred to you to consider this as related to exercise at all, or as being even a hygienic measure. You have looked upon it as a matter pertaining to medicine, as an adjuvant merely in the treatment of disease. If so you have failed, I think, to understand its nature and possibilities.

Before I make another proposition I will state an illustration. Our friend, Mr. Gladstone—I speak of him thus familiarly because he is the friend of all mankind—Mr. Gladstone goes out with his axe to take his accustomed exercise of felling a tree. In taking this exercise he exerts a given amount of force upon the tree. Usually when we read of the occurrence we think only of the "grand old man;" we forget the tree. But the tree exerts an equal amount of force against Mr. Gladstone by resistance. The duller the axe the more exercise for him in cutting to the center; also the more resistance by the tree. Whether sharp or dull the axe, oak or hickory the wood, fast or slow the strokes, active force and passive resistance stand at a perfect balance as between Mr. Gladstone and the tree.

Every exercise of force is subject to the same law. It is a principle running through all nature—*so much for so much.*

By the expansive power of steam the engine exerts so much force. It meets an equal resistance from gravitation, friction of machinery and the atmosphere, less a balance which is represented by *motion.* The *motion* is what we pay for. (The resistance we make to standing in the suburban train doesn't count.)

The genius of the bicycle consists in that there is a larger balance of motion obtained in proportion to the force expended than by any other means of locomotion, except flying, and to this we have not yet attained.

Now in massage—taken hygienically, for exercise, the operator exerts a given amount of active force upon the body of the patient. The force of resistance is equal to the force of application. If the operator, we will say, has labored actively half an hour—labored till he is weary and perspiring, expended sufficient energy to have carried himself, weighing say 180 pounds, two or three miles, then the patient by resistance has exerted passively an amount of energy to carry himself a corresponding distance.

But the points of resistance are determined by the will of the operator, enabling him to get both general and special results. It is possible for him to give the patient a more evenly diffused exercise than he would have obtained for himself by the walk, and without the nervous and mental exertion involved therewith. But if the patient has been the victim of partial exercises which have given him special exhaustions, local determinations of blood, irritations, hyperesthesia, etc., it is within the power of an intelligent massage operator to change the relative conditions of various parts, giving exercise to one and rest to another.

I know of nothing quite so restful to weary muscles and exhausted nerves, when one has been overworked for many weeks, nothing which so speedily equalizes the circulation and temperature as a single massage treatment thoroughly and skillfully applied, and this, too, without active effort on the part of the individual, when it seems to him, perhaps, that he is utterly incapable of exertion.

Also, upon reading upon the subject I have been quite surprised to learn how much study has been given it, and the amount of literature in existence concerning it. And I have been greatly interested to know to what various cases it has been applied with excellent results where ordinary remedies had failed. Yet it seems to me that we must class massage rather as a hygienic than a medical proceeding, one which if not always positively beneficial can never be harmful, when practiced by a person with ordinary common sense and judgment.

I am free to advise any dentist when weary and worn, to experiment, as I have done with this method of taking exercise.

MANUAL TRAINING A NECESSITY FOR THE FUTURE DENTIST.*

By D. M. CATTELL, D. D. S., Chicago, Ill.

On March 11th, 1890, Edward C. Kirk, D. D. S., editor of the *Dental Cosmos,* read before the first district dental society of the State of New York, a paper entitled "The Manual Training Idea as a Factor in Dental Education." That paper has so forcibly placed the subject before the dental profession, and the ideas there put forth so aptly stated that I feel justified in quoting some therefrom.

Indeed, the major part of this paper will be the reviewing before your minds expressions of thoughts in this line, emanating from the brains of those who have put their ideas in writing in much better and more interesting form than is possible with me.

"The increasing activity manifested in the tendency toward improvement of all our vital relations has become a characteristic of the age; one by one our beliefs, institutions and methods run the gauntlet of criticism, and are compelled to answer, in one way or another, the questions of their truthfulness, value or utility.

In general educational matters, reform is actively at work. Methods whose antiquity had caused them to be regarded as almost sacred, have, in many cases, been supplanted by those which the demands of the present have been found to be better adapted to its needs.

Our dental educational institutions have not escaped this inquisition. The dental profession, and indirectly the public, are asking if the professional equipment of the graduate is the best that can be had. Has he been so educated and trained that he is the fittest to carry on the work of saving human teeth?"

"The recent elaborate papers of Drs. G. S. Dean and L. C. Ingersoll, published in the *Dental Cosmos,* have not only drawn attention for the need for improvement in the matter of dental education, but have suggested at least two distinct lines upon which improvement may be made. The former lays stress upon the judicious selection of what he aptly terms the 'dental timber,' *i. e.,* men whose preliminary education and training shall have rendered them particularly suitable subjects for special development in dental knowledge and skill. The latter suggests certain reforms in the educational methods pursued in dental schools, among others the abandonment, or at least abridgment, of the lecture system, and the substitution of the cachectic method of instruction, the teaching of fewer methods, the abolition of the custom of having a large corps of clinical instructors, on the ground that the mind of the average student is confused by witnessing a diversity of methods, and so learns none thoroughly."

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* Read before the Chicago Dental Society.

While these are interesting subjects and might well be enlarged upon, they must pass for the time and the manual phase of instruction be followed.

"The manual training idea, according to Prof. Henderson, may be viewed from two stand-points, based upon the nature of its application as an educational method:

First, that in which the object or thing created by the hand is the end sought, in which event manipulative skill alone would be the highest educational result obtained; or,

Second, where the method is directed toward the cultivation of the brain and development of the intellect, in which case the psychological or ethical result is the primary consideration.

Admitting, for the moment, that both these apparently diverse results are attainable by the method under consideration, then it follows, necessarily, that a successful application of this principle to the education of dental students should involve a recognition of the dual nature of the method, and a harmonious balance of its essential characteristics be maintained in its application."

"The value of manual training for the development of manipulative skill in the dental student is admitted by all, and needs no argument. The value of the manual training idea as an educational method in the *mental* cultivation of the dental student probably needs greater emphasis."

"Dr. Felix Adler has said "hand-culture, apart from its value *per se*, is a means toward a more effective brain-culture." The dentist who has spent a short time in the practice of his profession, and gained even no more than average manual dexterity, who cannot accept the truthfulness of this statement must admit that his experience has taught him nothing. It has become a trite saying that 'experience is the best teacher,' and in dental teaching, within certain limits, this is put into practice. Thus all the reasoning or didactic teaching in the world will not enable a student to successfully fill a tooth or make an artificial denture until he has seen it done; or it may be said, even at the risk of making an Irish 'bull,' that he cannot properly do either until he has first done them imperfectly; and though it may be urged that the practical part of dentistry is already taught in the clinic room and laboratory, yet, if viewed in the light of their possibilities as educational means, from the standpoint of *the manual training principle*, at the same time bearing in mind, as before stated, that any method of imparting knowledge which involves the exercise of any of the perceptive faculties is properly included in the manual training idea, it is questionable if these departments have received the attention and elaboration which their real value as educational factors demand. It has been shown that development of the intellect is a natural physiological process presenting two distinct phases--viz, the acquisition of basis facts through the perceptive faculties, and the orderly arrangement of and reasoning upon the acquired knowledge. The function of the laboratory, therefore, naturally precedes that of the lecture room; and for the reason that by far the greatest proportion of the labor of the dental educator is devoted to imparting to the student the knowledge of the facts of dentistry, it seems clear that the laboratory and clinic room should be the arenas for his most conscientious and devoted efforts as instructor."

"Freely admitting that the judicious selection of the "dental timber" would, of itself, beyond all question, greatly improve the quality of the finished product, yet, in view of the lack of preliminary examinations of an *efficiently selective character* in our dental schools, the immediate question at issue is, How shall the best results be gotten from the material as presented? Does not the manual training idea offer the most promise as a means for developing a student of average abilities, just as it may be expected to produce the highest result when applied to the best?"

The question of how to make dentists is simply a problem of special education and training, and one which must involve a recognition and adaptation of the broad fundamental principles upon which all education rests. The belief that the manual training idea, or physiological method, is one which promises the very highest results, is widespread."

Prof. Todd, of Philadelphia, says, "the idea of manual training, from my point of view, is so to train the hand by the working of materials of different kinds that they can minister to the individual and make him a more nearly complete and perfect man intellectually, physically, morally, and spiritually. No one can receive a good intellectual training alone without obtaining a complete mastery over some of his physical powers by skill in handicraft. By making things that minister to his wants, both useful and beautiful, he is compelled to work physically and intellectually, and this necessitates harmony in both bodily and mental powers."

Again he says, " medical men know that if we do not use certain muscles they become stunted and useless. I find that most hand workers and mechanical workers do not have what I understand some of you gentlemen mean and I mean as manual training; they are not skilled in the use of their hands, both hands, working with equal facility in all directions. Most workers to-day can do nothing without their tools. The tools are always used before the hand is skilled behind them. That is the reason I advocate the four fundamentals, even at the expense of some other training, because they save time. The hand, the eye, and the judgment being trained, then the tools of any or all trades will be handled with freedom and reason.

To conceive and create forms in material, of course, compels thought and the use of the brain. The organs of muscular sense—sight, taste, touch—cannot be brought into play without bringing into use the completest tool of all, the brain. Must it not in all its fibers be exercised and developed through the outer branches of the nerves extending to the very finger tips; a ready instrument, instant and able to do the bidding of a skilled manipulator?

Nothing gives greater dignity to man than a complete realization of the power of being able to do. No joy is greater or more lasting than that received by doing well with the complete being—brain, hands, judgment—all tools; God-given tools to be trained and used."

Prof. THORPE, of Philadelphia, says:

"That boys and girls are chiefly able to learn their relations in life, the nature of objects, and the properties and qualities of things by the tactile power. That power interprets our wants and also aids in meeting them. The tool is a specialized hand, a refined adaptation of promiscuous muscularity, a trained muscular power. But manual training does not stop with merely a trained muscular power. In the process of that training, what changes are making in the boy himself? I must urge you to examine for yourselves what those changes are. There is not a branch of study usually pursued in schools which is not made of more direct use and to serve a clearer ethical purpose because of manual training. Manual training is only "mind training."

Prof. THORPE, further says:

"To men in your profession the introduction of manual training into the fitting schools is more plainly defensible than to men not trained to be mechanical experts. What value would you attach to manual dexterity alone in the training of a dentist or a surgeon? As you intend to lengthen the term of your college course to three years, what value will manual training have for those who come up to pursue your enlarged and composite course. Are the young men who seek admission into your profession now well trained in the use of tools? Are they expert in the manual work required in your courses as they now are? Are their minds able to execute accurately the plans which even a person of average mental powers can plan? I state the whole problem of manual training when I ask, Does that training help a person to think? Thinking is training. Manual skill supplements clear thinking, but the processes of thought and manual training must proceed together; they cannot be divorced; a mindless surgeon or a mere theorist in surgery is alike unfit to practice his profession. If you advocate the introduction of manual training into the fitting-schools, you advocate the improvement of the profession to which you belong; you raise its standard of utility, you equip its schools with trained material, and you meet the wants of society more perfectly than those wants are now met. Given manual training in the fitting-schools, and every medical college and every dental college in the country will become in time the training-ground for future experts, and not only of the experts, but also of that larger number in the profession who are not experts, but only safe surgeons or dentists. The result will be that the average practitioner under such a condition will equal the expert under the present *régime*.

Dr. ADLER is quoted as saying, "The physiological education of the senses is the royal road to the education of the intellect; experience, not memory, the mother of ideas."

The Superintendent of the New York City Schools says: "The object of manual training as an aid in general education is threefold.

First. It is used as a means of fixing the attention and holding the interest of the pupil in the subject matter being taught.

Second. It is used to connect thought movement with the material things with which it is normally related.

Third. It is used to train the peripheral senses, particularly the touch, the eye and the ear to keenness of perception, and the muscular senses to accuracy and range of execution."

From the ranks of our own profession I quote a few good sayings, uttered during the discussion of the aforesaid paper:

Dr. RICKOFF, of New York City: "Manual training, as defined by its advocates, is that training of the hand which brings it into subjection to the dictates of the mind as a mode of expression. It is claimed that this, in its turn, reacts upon the mind, requiring, as it does, as indeed all modes of exact expression do, a careful exercise of judgment, reason, and imagination in the elaboration of details. Facility of execution of the hand within its province should be cultivated, just as readiness and exactness of expression of the tongue or pen should be cultivated *pari passu* with the correlative faculties of the mind. It must have been observed by you, in the practice of your profession, that the hands of some men respond more readily to the dictates of the will than do the hands of others. It would almost seem as if the hands of some men did not wait for impulse from the council chamber of the brain through motor nerves, but that they are self-active and self-determining. It is this almost immediate communication between the brain and the hand that we would cultivate by manual training, not for the sake of manual skill alone, but more that the mind, through the exercise exacted thereby, may be trained in readiness and precision of thought. This, I say, because it seems necessary to denounce the idea that the advocates of manual training aim to supersede or in any wise belittle the study of language, science, or art. As an aid to all these it has its chief value. This exercise of the brain in expression of material forms through the agency of the eye and hand in and of itself exercises and trains the mind. It ought to be said that it is not safe to defer this training till special pursuits or professions require the exercise of manual skill, for experience in every department of education goes to prove that any faculty neglected in early life is apt to be lost."

Dr. PETERSON, of New York City: "Manual and industrial training to me are mere phases of what I would call muscular training. When we study the evolution of mind in a child, we learn that at first the child perceives with its sight and hearing, that it perceives color and light and sound; and it is only later that, by the movement of the eyes from side to side and up and down, it receives some ideas of the position of objects in space, of their bulk, their size, and general conformation; and in handling these objects later it learns through the muscular sense—a reflex expression of it—the shape, conformation, weight, etc., of objects, so that it is through those two avenues, both of them avenues of muscular sense really, that the child gains its entire knowledge of its environment; and not only of the environment outside of itself, but of its own body, and the position and use of its members. It is by the training and education of the muscular sense that we educate the intelligence, because there is a connection between muscular movement and an idea, so that we can speak of muscularity of thought or psycho-motor ideas. And the more this general muscular sense is educated, the richer becomes the store of intellectual capabilities."

Dr. Kingsley, of N. Y. City, gives a bit of personal history: "When I was about seven years of age, my father furnished me with a pocket-knife. My mother thought it was very injudicious, saying I would cut my fingers. "Never mind," said my father, "if he does; he will learn not to cut them." When I was eight years of age, I was whittling out little water-wheels and running them in a little stream that passed by our house. About that time I read in some book, published in Boston, something about how a clock was made; it gave the principles, and I got some little round wooden wheels, on which ribbons come, and cut the notches out and made a clock with this same knife that my mother was afraid I would cut my fingers with. I did cut my fingers, but I was learning to use my fingers; and I have kept at it; I have not left it off to this day. I believe now that any dentist who ignores the laboratory as not being high-toned enough for him is ignoring the place of all others that would give him the best opportunity to keep in good practice and to acquire the highest point of skill in any branch of dentistry that ne may be following. Some years ago a friend of mine wanted to make a dentist of his son, and asked me to take him as a private student. I said I would when the time came, provided he was trained for it. I said, in addition to his foundation-work in the academy, let him undertake something that will be in the line of manual training simultaneously with his other studies: let him play the violin, the Jew's-harp, or the piano, take lessons in drawing, or a trade, something by which he will acquire skill with his fingers. That was carried out for two or three years, until it was proven that the boy had no interest in the use of his fingers; it was work, it was drugery; so the proposition to become a dentist was dropped. I do not think he could have been trained to become a really skilled dentist. He would have made as good a dentist as the majority of dentists who have no special finger-training, who go to college and spend their time smoking in the laboratory and seeing others operate, and then hang out their signs. I tell all young men who come to me for advice, if they have not already acquired some manipulative ability with their fingers—I do not care whether it is modeling or what it is, only so they have finger skill—that if they have not acquired that skill, and it is too late to acquire it, they might better study law; that is the place for them. Gentlemen, you all know very well what my sentiments are on this subject. I endorse fully the idea of manual training as being first, second, third, last, and all the time in the preparation of a young man for dentistry; and manual training if begun at the proper age, will do more than other thing I can imagine to lay abroad foundation for becoming a good dentist."

Dr. Ottolengui, of New York City, tells this story: "It is nearly twenty years ago that a certain cousin of mine married; he was fresh from European colleges, and filled with science. When his first boy was born, he looked up some books which he had seen in Europe to learn how to train his boy; he was going to bring up the child by a plan. It was hooted at. The first thing that he bought his boy was a blackboard, and the first thing he taught him to do with the blackboard was to draw circles, just as Prof. Tadd showed us to-night; drawing them both ways and with both hands at the same time. Now it seems odd that I, who had as a child shared the prejudice against the system of this scientific cousin of mine should really be a better dentist to-day on account of the manual training he gave his child. Whilst I took considerable interest in what he had done, I was surprised to see this boy of seven or eight years of age originating some very beautiful and peculiar things upon the board. I about that time was going to college, and had learned to fill teeth with the automatic mallet; then I had to have a tooth filled myself, and the dentist used the automatic mallet. I swore that I never would use the automatic mallet on any other man, as it is barbarous. Then the question was what to use in its place. In order to use the hand mallet, it became necessary to have an assistant to mallet for me or to be able to mallet for myself. That immediately made a reversal; while I had been using the mallet with the right hand, I had to begin to use it with the left. I tried it but could not do it. I told my cousin that I regretted very much that I had not been trained as his child was, to know no difference between the right and left hands. He said it was not entirely too late yet. He then called his second boy, who was five or six years of age, and gave him a piece of thin paper and two pencils, and dictated a sentence. The boy started in the center and wrote away from the center with each hand. The paper was then folded over and the lines were held to the light, appearing almost coincident. This showed that the boy's muscles were trained in pairs, and he could do almost the same with one hand that he could with the other. It pointed out another fact, that while we educate a set of muscles we unconsciously or correlatively educate the corresponding muscles so that they may have their natural powers. We write with our right hand from the left side of the body across; and if you take the left hand and try to do the same thing, you are attempting something that the right hand never did; to write in a direction similar to that of the right hand with the left you must commence at the right and write toward the left side of the body; then you are using the muscles in the same way. In a short time I educated my left hand to write that way. Looked at as it is written it is nonsense, but reverse it and hold it up to the light and you see it is similar, and has the same characteristics as the writing of the other hand. It is a good point to show that the mind is educated through the hand. I systematically for several months practiced writing with my left hand, and then my manual training dropped off, and I used the left hand in my business, and do now use my left hand with the engine as well as I do the right. I want to say that that system of manual training is not as farcial as it looks."

Dr. Dwinelle, of New York City: "That our hands and all parts of our mechanical system are called upon to express the ideas of the brain, of the soul, and are instrumentalities for that purpose. Our eye does not see; it is simply a camera-obscura that makes an impression upon the retina; the image is formed there upon the screen; and this retina itself is but an extension of the optic nerve, expanded and subdivided into infinite papillæ. The optic nerve does not see; the communication goes back to the seat of intelligent perception. The ear does not hear; it is a mere instrumentality. The auditory nerve itself does not hear. The impressions are carried back to the brain, and there the mind, the soul alone, perceives. The hand does not feel, with all its manipulative ability; it is a mere instrumentality, the expressive agent of the action of the mind for a purpose. The hand itself does not feel; it is the brain, mind, the inner consciousness, the soul alone, that feels and appreciates. And here is another idea: through the agency of our professional instruments we project ourselves still further—beyond ourselves, beyond our hands; we are thus enabled to give expression to the mind. The painter with his brush projects and extends himself beyond himself, so to speak; thus we are further equipped with instrumentalities which give a higher expression to the conceptions of the soul."

Dr. EISENBREY, of New York City: "Mental training, if the physical training is out of harmony, is of no use; and manual training is only a means to an end."

In a paper read before the Scientific Union, Dr. G. V. Black says:

"Manual training is to be understood as a course of instruction so arranged and prosecuted as to approach the seat of intelligence and command the attention through the peripheral senses; and while conveying general instruction, shall train the senses to sharper perceptions, to greater accuracy, and to wider range of execution."

"Manual training, in the strict sense of the term, would mean simply training of the hand; but as currently used with reference to education, the words indicate such employment of the hand as will at the same time train the eye to accuracy and the mind to attention."

"*Technical* manual training is a training to all those purposes pertaining to a special line of business or profession. It relates not simply to *doing*, but to *thinking* as well."

Now, gentlemen, with the manual training idea put so tersely before our minds, the question as to whether the manual training *fact* is a *necessity* or not is easy of answer.

The fact is, that those of the profession to-day, who began their studies of dentistry since the mutiple number of colleges came into existence and the *seeming* necessity for studentship under a competent preceptor ceased to exist, are not so well trained in handicraft as are those who had a long apprenticeship under the older method of gaining the requisite knowledge. This is a fact recognized by the observing and earnest men. We have but few men in the profession to-day, that can wholly shape the meadium difficult cavity, (to say nothing of the more difficult), with hand excavators alone. Neither can they insert a satisfactory tin, tin and gold, or noncohesive gold filling, as could our fathers in the profession years gone by. Their hands were never trained to the work. They get over the point by claiming they see no advantage in the insertion of such fillings, or find no occasion for discarding the use of the engine in the preparation of cavities. Indeed, if such an expression may be allowed, *they expect the instrument to do the work rather than the hand.* It is true that a few of the schools are endeavoring to give the student a chance to acquire some hand training before he is ushered into the clinic room and turned loose upon unsuspecting humanity.

But the average young man, when he presents himself as a candidate for studentship, has had so little manual training, that he is like a mere child with his first christmas box of tools.

Yes, those of us who have been in a position to observe these young men, know that of the farmer boys, those who have had the "tinkering" to do—viz, mending the gates, rehinging the barn door, making a new "tail gate" for the wagon bed, to replace the one jolted out on the rough road last trip, whittling out a whipple tree and mending the harrow, has better use of his hands than the one who pitched the hay, tossed the sheeves, piled the stones, laid the rail fence and hauled the manure.

It has also been observed that those who presented themselves from the machine shops have acquired certain cunning of the hand beyond the farmer boy, and they soon show a dexterity that the college boy or former mercantile clerk or salesman can hardly hope to attain in his college days.

With these observations before us, we can but realize the necessity of greater effort toward training the hand to more delicate manipulation. It is a generally conceded fact that with the training of the hand the intellect is sharpened and quickened. *With the cuteness of the hand belongs the acuteness of the brain.*

The higher grade of mechanics are necessarily the brighter men. As their handicraft developed and their finger skill increased the mind grew in stature and quickened in order to keep pace with the hand that led it.

Can a man build a bridge or fill a cavity with no other knowledge than that gained in the lecture room? Can he understand the theories, the propositions, the rules given in certain cases without first having had experience in finger manipulation in the construction of these things? Rather, after practical demonstration before him, and actual accomplishment of the deed, although imperfect, with his own hands, is he ready mentally to grasp ideas, understand theories and comprehend rules proposed by the lecturer. As the hand is trained, so the mind follows. "Manual training is only mind training."

We who have watched the kindergarten children play, the *method* of their playing, the intelligence exhibited in the direction of their ways and means of entertaining themselves, and comparing these with the undirected, unmethodical playing of the little ones lacking the opportunity to embrace the kindergarten system of instruction, can readily see the more intelligent joy, the more intense enjoyment of the one over the other—the enjoyment of being able *to do* is more consistent, more complete and more ethical than the simple pleasure of theorizing or *wishing we could do.* And in the higher enjoyment our minds expand, become more receptive, and intelligence is the result.

We who have watched the growth and doings of the youths undergoing the methods of instruction in our so-called Manual Training Schools, and the practical application of both their hands and brains after the completion of such a course, know that they compare most favorably with the boys unable to follow such methods of instruction. Those who pass through and out of such schools are more ready to compete in the world's battles than he who is not so well fortified with both manual and mental training.

Lastly, we who have watched the development of the young men in our technical manual training departments of dental schools know, and know it positively, that their growth mentally is quickened, sharpened, broadened, and they are enabled to grasp, comprehend and more fully understand verbal explanation or instruction than are those who have not had the benefit of such manual training.

Gentlemen, the *necessity* is surely before us. Can we meet it?

PROCEEDINGS OF SOCIETIES.

PROCEEDINGS OF THE MINNESOTA STATE DENTAL ASSOCIATION.

The Ninth Annual Convention of the Minnesota State Dental Association was held in the Library Building, Minneapolis, beginning July 13, 1892.

The meeting was called to order at 2 P. M. by the President, Dr. Merrill.

At the request of the President, Dr. Knight took the chair, and the President then submitted his annual address, which was received with applause. See file.

The discussion following was opened by Dr. Jennison:

Dr. JENNISON: The great modesty shown by the President in beginning his paper, is rather becoming to him, but I do not believe that most of us consider that his ability is not equal to that of any one who has gone before him. The society expects more from each new President than it receives from his predecessors, and I feel that we have not been disappointed in this instance. The President said, "It must be confessed that our transactions thus far do us small credit." In some respects that is true. We have done well, but we could do better, and that should be our aim. As he stated, Minnesota has taken a front rank in the profession, because of its progress, although we are yet young in this State. Our record as a whole has certainly been very gratifying, and we have no reason to be ashamed of it. Still, we should not stop where we are. Again, he says, "To awaken interest in our society work is what is needed." This statement requires no argument; it speaks for itself. I think we have something over 300 dentists in the State, and less than half of that number are members of any society whatever. Many of them are good, active, earnest men, and I cannot see why they should not be members of some of the societies. Those who are already members of the State society should make an extra effort to attend the meetings. They are under obligation to do so. In joining the society they bind themselves, in a certain degree, to add their mite to the work that is being done, instead of simply paying their dues and staying at home and letting their names go on the books as members of the society. This is not right, nor is it just to the active men in the society.

The President, in speaking here of the hard work of the committee in preparing a programme, has touched upon a point that I think is too little appreciated by the members of the society. The work of preparing for the meeting, and getting the materials ready for it, is almost always left to a few to perform, and those who have not taken part in it do not realize the amount of work that it means. It is not very satisfactory to the ones taking part oftentimes. In a great many cases they will meet with flat refusals from the members, and when they do not, they meet with what is more discouraging many times, and that is a most decided lukewarmness. I think where a person is a member of the society, that they should come forward and do what they can. If you cannot do as well as somebody else, why, do your best anyway. This is a part of the duty of belonging to the society, I think—not to lie back and offer no sympathy or aid to the committee in charge. They have a hard enough time, even if the members turn in and help them. As far as being on the programme is concerned, I think the one who takes part in it will derive as much benefit, and often more, than those who merely listen to it. I know where I have been asked to take part in it I have found that I received benefit from it. It means considerable work in preparing an article and the one who prepares it will discover many things that he had not before thought of, while of course those who listen to it will also learn some new points. It is the duty of all of us to do this, to aid the committee in preparing for the State meetings.

I was glad to hear his flattering words in regard to the State University. For a young school we have there one of the best in the country. It was one of the first to take a stand for a higher standard of education, and it has adhered rigidly to it. They are doing good work, and we should do all we can to encourage them.

Dr. W. P. Dickinson, Minneapolis, then read the following paper: "Conservative Treatment of the Dental Pulp." (See p. 173.)

The paper was received with applause, and the discussion opened by Dr. Robinson, of Wabasha, as follows:

Dr. Robinson: I received a note from the Doctor saying that he would like to have me open the discussion on his paper. I am not prepared to give very much of a talk upon it, except as to my own views on the subject. I will say, at the start, that I have never been very much of a believer in the conservative method of treating the pulp, that is, as regards trying to save the pulp after it has been fully exposed. I may agree with the Doctor in certain cases where it is advisable. I believe in trying to protect the pulp from thermal changes, and I presume every dentist present also believes in it. The Doctor states some cases, which he thinks are favorable cases for conservative treatment of the pulp, and among others those in which the pain has been caused by a pressure of food or various foreign substances against the pulp. I take issue with the Doctor on that point. If the pressure has been sufficient to cause decided pain, I believe it has been sufficient to press the pulp out of its proper relation with the tubuli of the dentine. We believe, although it has not been fully proven, that there is a vital connection between the pulp and the dentine. We have that demonstrated to us every day in the sensiveness of the dentine. If this pressure has been sufficient to disturb the relation of the parts, will they be reëstablished, is a question in my mind. I think they will not. If the pressure has been slight, and the pain has not been severe, I believe that it can be done as the Doctor stated. Speaking about the sensitiveness of the bulbous portion, if there is a central hyperæmia of the pulp, at the point of exposure, we know that there is extreme sensiveness to cold applications, cold water, etc. In such a case, if this hyperæmia can be reduced, I think there is no question but what the pulp can be saved if handled properly. If the pulp has been allowed to remain in this condition, and this hyperæmia has gone on until it verges on congestion, that tooth will be sensitive to hot applications. You will notice a difference in the stages. At one time it is more sensitive to cold, and at another time to heat. I think where they are more sensitive to hot applications that there is less chance of saving the pulps than when they are sensitive to cold ones. It seems to show that the hyperæmia has gone on until it verges on congestion. There is more fluid in the pulp and in the surrounding tissue, and therefore there is less chance, to my mind, of saving the pulp. We often hear it advocated that even parts of the pulp can be saved, even after the bulbous portion has been destroyed. I do not believe in that theory. I believe if the bulbous portion of the pulp has already been destroyed, the best we can do is to remove the balance, and to fill as perfectly as possible. I do not think that after the relationship between the dentine and the pulp has been disturbed, and so cut off, that there is any use in trying to save what is left of the pulp. Of course, the Doctor did not advocate that in his paper, but I am simply speaking of it in a general way. I think the method is as good as any advocated at the present day. I have nothing different in the way of method, where I do attempt to save the pulp. It is very seldom though that I try to save the pulp, unless the exposure is an accidental one, or unless everything is favorable.

I think perhaps, that I go to the other extreme sometimes, and destroy pulps that might have been saved, perhaps on the principle that "dead men tell no tales," and perhaps because I doubt my own ability to save them. I have seen so many cases where pulps have died under temporary fillings and under permanent fillings, and still gave no trouble, that I am led to believe that in many of these cases that are spoken of as successful, the pulp has really died. On the other hand, we find, in our attempts to destroy the pulp sometimes, that there seems to be an endless amount of vitality in it. It seems as if anything in the way of protection would conserve such a pulp, inasmuch as we find almost endless difficulty in trying to destroy it. We find when we tell the patient that the pulp is destroyed, and he can use it without hurting, that he will doubt our word. There is nothing further for me to say, Mr. President. I have not given the matter much study and so cannot open the discussion as I would wish to.

Dr. REID: I would like to ask Dr. Dickinson a question. He states that the preparation which he uses is about the consistency of putty. If that is so, how do you make the application?

Dr. DICKINSON: I experienced a little difficulty as to how to express that. Now in almost all discussions it is spoken of mixing the phosphate cements to about the consistency of cream. The idea I had was not that it should be of the consistency of putty used by painters. Of course it would not be expected to be made too hard to spread. I did not know of any other term that would express it. It wants to be in a rather soft state in making an application for protection.

Dr. REID: I supposed when the Doctor made the remark, that it was a term he did not want us to take literally, because I do not think that he or any one else would employ any substance of that consistency. While I agree with the paper in the main, there is one thing I wish to add. If there were more care, more nicety and attention given, there would be a great many more pulps conserved than there are. The trouble originates in more than one way.

Many times you get a patient in that condition and they become exceedingly impatient, they want to get rid of the pain or trouble, and too frequently we give way to them for that very reason. We want to satisfy them and get them free of that trouble. Now, in the application of anything to cap a pulp, I feel you must have some substance that will adapt itself as easily as possible to the cavity. I cannot put my hand in it, and I want to get something that will adapt itself to that cavity.

Dr. DICKINSON: When I was speaking of pulp capping I said it must be much thinner so as not to require any handling.

Dr. REID: I have used the Doctor's preparation some. I will confess, as he said, that the trouble comes from lack of proper handling. I have been troubled to get it to work right. I suppose he has worked at it, and in mixing it up can get a consistency that I have not been able to get. I think that one who uses almost any material will become more or less dexterous in the use of it, and also in the use of the second finger. I do not know but what the preparation is just as good as any, but I feel this way: I think as Dr. Robinson says, there are too many of us a little anxious to bury the pulp as soon as we can. I feel that all of us should pay more attention to a thing of that kind and try to save all we can. Even if we only get one or two out of a great many, I think we have gained that much at least. After all, there is a great deal to be gained by the delicacy and nicety with which you do these things. As the Doctor says, you must get a rubber dam, and if it is in a condition where you cannot see it, you had better open the tooth up and work at it where you can get at it. It is an operation that requires you to get where you can to see everything, and do it in the best manner.

Dr. ROBINSON: I would like to ask the Doctor one question. I understood him to say that after flowing this thin preparation over the exposed pulp, then he follows with the oxyphosphate or oxychloride. Do you place a metal cap between?

Dr. DICKINSON: I do not. I sometimes use asbestos. Prof. Weeks uses asbestos almost entirely. He uses it for convenience sake.

Dr. ROBINSON: The reason for asking was simply this. Any of us who have had occasion to remove a crown or bridge, that has been in the mouth for several months or a year, as the case may be, have found in removing the oxyphosphate from the cap, a condition of things that is not desirable. The oxyphosphate seems to have absorbed everything that is applied in the mouth. It seems to me that demonstrates that oxyphosphate, or any of our cement fillings, will take up more or less of these gases, and more or less of this poisonous product or decomposition. Now if they will do that under a crown, even if the crown is pretty closely adapted to the tooth, will it not occur within a tooth, and would not the putting of a metallic substance or something similar between this cap and the oxyphosphate following, have a tendency to keep everything from the pulp itself? That is the idea I wish to bring out.

Dr. DICKINSON: I hope, Mr. President, there will be a full and free discussion of the subject. As I said before, I am somewhat of an enthusiast about this matter, and the conclusions I have come to are based upon rather longer experience than things of this kind usually are, that are brought forward at these meetings. I am not at all sensitive to criticism, for I want to get at the truth, and if I am making any mistake, I want it brought out. I will be glad to give any help that I can. That is what I am here for. Now, in regard to using the oxyphosphate over a capping. It is, I may say, the principle use of it. It is simply to get a covering of something that will harden immediately so we can go along with our work. It is not necessary in a cavity of ordinary size to put in that covering there. The dehydrating of the tooth itself, with alcohol, is antiseptic, and the chloroform is antiseptic. The essential oils put into it are antiseptic, and the heat which is used to drive these out, they all act in an antiseptic way. Now, the mixture of the oxyphosphate, and especially with the iodoform in it, will take up what little of the noxious gases that remain in the cavity, that the doctor spoke of. The oxyphosphate is simply used to make a hardened vitreous layer—of course it is not exactly vitreous, because it is not hard enough for that, but it makes a covering so we can go right along with our work.

Dr. VAN DUZEE: I would like to ask the doctor a question before the society, because I think it is one we may all come across. I have used the preparation a couple of years, and have frequently found that the patients complain of still tasting that medicine that I put in under the filling, even after the lapse of a month or two. Now I first thought in one or two cases, that perhaps I might have been careless enough to insert my fillings in such a way that there might be some leakage, but the fillings stand nicely, and I cannot find any evidence of that sort of trouble, so I am led to believe that some of the ingredients that are used in the preparation are absorbed by the pulp, and are eliminated through the mucous membrane of the mouth, which produces that taste. It seems to be almost constantly in the mouth for months after the material is used. Now, it seems to me, it would not be possible to have leakage enough around a gold filling to allow that to escape without some fault being brought to the surface in the filling itself. I would like to know if the doctor has ever come across that condition of affairs.

Dr. Dickinson: I have occasionally had complaints of tha kind, but very seldom considering the amount that I use of the oxide of zinc and the iodoform with the menthol. There is so little of it that I cannot conceive of its getting around in that way at all. When we treated the condition that we speak of as ulcerated tooth, with a combination of creosote and iodine, we used to constantly hear of that. Even if we got the tooth in a good condition and filled it, the patients would complain for months and months that they could taste it. The proportion of the iodoform with the oxide of zinc is so small, that I hardly think the iodine would be enough to produce that, and I do not think the menthol would do it. I cannot account for it.

Dr. Van Duzee: Have you ever met with that condition in your practice?

Dr. Dickinson: Yes, occasionally, but not very often. It has been so seldom that it has not been a factor in taking into account the objections against using it.

Dr. Stearns: There is one point on which I wish to disagree with the Doctor, and that is, in the use of medicines to aid the operation of capping. I believe it is theoretically and practically wrong. My opinion is that all treatment should cease at the time that the pulp is covered. That is the end of the treatment. If we have not got it in a condition to be covered, we had better not cover it. In my estimation, the ideal pulp covering or cap would be a finely glazed piece of porcelain. Of course we cannot use that and the next thing is to get something as nearly approaching it as possible. I think in all cases of this kind, that the application of any medicine, sealed into the cavity, is decidedly wrong. Furthermore, I think it is not necessary—I am somewhat of a crank upon this subject myself. I will say that within the last year I have used arsenic twice that I know of and possibly three times, but not more than that, and yet I have had more cases than that of exposed pulp. I almost invariably make the attempt to conserve the pulp and in a large proportion of the cases I am successful, because I make it a rule that whenever I cap a pulp I let medication alone.

President Merrill: I would like to ask Dr. Van Duzee if in the cases he spoke of, of tasting the application after it had been inserted, if that occurs immediately after the filling has been inserted, or some time afterward, and if it was not possible that the pulp may have died under that application and the medicine passed out through the apical foramen, and be tasted in that way.

Dr. Van Duzee: I do not think there is any question but what the pulp is alive and in good condition, for this reason: I have yet to find more than one or two cases where the treatment has been anything but very successful. Now, in those cases, although that is a point that I never thought of before, as I look back upon them it seems to me that there is nothing in that supposition. I think the pulps are alive and healthy because I do not think we could have death and disintegration of the pulp, and the passage of a foreign substance through the canal so easily, without there being some other indications of trouble. So far as Dr. Stearns' point in regard to leaving medicines in the tooth is concerned, I would like to ask him if there is any good reason why you should not insert under a filling a suitable filling substance saturated with a drug which is known to be rather favorable in its action toward the pulp than otherwise, and allow the pulp to absorb all that, leaving the menthol and the materials of the preparation of zinc, to occupy the space. It is a porous substance to be sure, but I do not understand why it is not perfectly proper to leave underneath a gold filling a mixture of that kind. I am favorably impressed with the results I have obtained from the use of that drug. I have used it in the very worst cases I could possibly have undertaken to handle, and have obtained results which were very satisfactory.

Dr. Jennison: I must confess that my enthusiasm in regard to the conservative treatment of the pulp is not very great. I suppose we are all governed somewhat by experience, and we may be largely at fault ourselves sometimes for the obtaining of good or bad results. Where any pulp has been in a pathological condition, I doubt very much its being brought back to a perfectly normal state where it will remain so. Where they do occur in that way, the first treatment is always to suturate them with some antiseptic, then go ahead and cap them, and they remain quiet. The question is what is the state that they are in. Now there is often enough in the antiseptic itself, to prevent decomposition from setting in very much, and a great many times these operations get the credit of succeeding beautifully. Still I think that oftentimes you will find that the pulp was dead or nearly so, if the true state of affairs could be learned. The antiseptics with which they are saturated preserve them from active suppuration. Of course a recent exposure, if it is carefully capped, acts very much better because you have different conditions to contend with. But why do we want to save it? If, as Doctor Sudduth, and a number of other authorities claim, it is simply a formative organ, what do we need it for after the tooth is formed.

I do not think we find a very decided change in the structure of the tooth if the pulp is carefully removed and the canal filled with some antiseptic material. It seems to me that the principal point we are aiming at is to avoid an infectious trouble from a dead pulp. Antiseptics, I hope, will some day relieve us of that danger, and bring us to where we will have no abscesses and no inflammation if the pulp is thoroughly removed. But that is not done in many cases, and for that reason, with the limited knowledge at the present time on the question of antiseptic treatment, many of us are forced to the conservative treatment of the pulp. I attempt it in many cases where I feel I cannot thoroughly cleanse the canal, and I think many others try it for the same reason. When we can thoroughly remove the dead pulp and find some more satisfactory way of devitalizing, I think we will hesitate a great deal less about these different points. Until we do, we have to a certain degree, to adopt the conservative treatment, and in that case the method before the convention is undoubtedly the best. I must acknowledge that I have capped a good many of them with arsenic, and used antiseptics thoroughly afterward, and although I cannot prove it by figures, I think the results average about as well as where I attempted the conservative treatment in questionable cases.

Dr. Leonard: My experience has been similar to that of Dr. Jennison. I have had no particular success with capping exposed pulps with the idea of keeping them alive in the tooth. I think the ideal antiseptic treatment of a pulp that has been devitalized, is such a treatment as will keep the tooth from inflammation and ulceration when some portion of it is still in the tooth. We all know that it is impossible to get all of that pulp out of the tooth in very many cases, and those are the ones that give us the trouble. If we can get a good straight canal where we can get the pulp out readily, there is no trouble, but where it is impossible to do this, then the thing to do is to find some antiseptic that will keep that condition of affairs from causing trouble. I have had very much better success with devitalizing the pulp, than I have had with trying to preserve it alive after it has been really exposed.

Dr. GOODRICH: I rise to return thanks for the paper, and also to call attention to the admirable capping material of Dr. Dickinson's, which is on the market. It is about the only thing I use, and I have met with very good success in using it. In regard to the taste that Dr. Van Duzee spoke of, I think he will find that it is a sort of peculiarity among peculiar people, and I think it ought to be looked at in that way. I do not think there is very much in it myself.

Dr. BRIMMER: I do not see that simply putting a medical preparation under a filling does any harm, as that pulp itself is a circulating medium. I cannot see why the pulp cannot perform the function peculiar to itself like any other part of the circulation. I do not see that putting a medicine under the filling is going to endanger that pulp simply from the fact that the medicine is there. Oftentimes a person suffering from an ulcerated tooth on the lower jaw does not go to a dentist, and the pus discharges itself. Now what becomes of that pus? Why, it is carried off by absorption in the circulation. We do not always realize what an enormous amount of work is done by the principle of absorption, and I do not see why the pulp cannot do a little of that work. Dr. Jennison made the statement that the function of the pulp was simply formative. If that is the case, I do not see why we should find in the case of an old gentleman, for instance, who had a tooth out, and yet there was a live pulp there. It seems to me that if the function of the pulp was formative, that when the tooth became calcified, the function would cease. I do not think that we ought to obliterate something that was put there by a pretty good workman.

Dr. JENNISON: In a great many cases if we examine the teeth in elderly people we will find that the pulp cavity has very decidedly decreased, and in old age, had disappeared entirely in a very large number of cases.

Dr. BRIMMER: In excessive attrition?

Dr. JENNISON: Yes. If that is contrary to the design of the Creator why was this extra dentine created to fill up the pulp?

Dr. BRIMMER: It is mechanical. In excessive attrition, when the position of the pulp recedes, of course it calcifies. When you find there is no attrition, no wearing down of the parts, I think you will find a pretty healthy pulp, and I should want to go rather slow. When we find attrition, of course we look for recession of the pulp.

Dr. JENNISON: I have one case where I think every tooth in the patient's head is affected with the receding condition of the pulp, and yet there is scarcely any wearing away by attrition. The pulp is about half receded, that is, in every tooth I have opened.

Dr. REID: I want to ask Dr. Dickinson another question. He may think it is a little unfair. What would be your treatment, Doctor, in the case of an accidentally exposed pulp?

Dr. DICKINSON: It is presumed in the first place that you have that cavity isolated from the fluids of the mouth. There will be a little hæmorrhage. I would have no hesitation in going right on and capping this just as I stated there in the paper.

Dr. REID: There is one of the cases where I will agree with Dr. Stearns. It looks as though there was no earthly sense in medication there. The supposition is that it is perfectly healthy, and is merely an accidental exposure. In that case, why do you want to medicate it? A doctor whom you all know well, talked that doctrine to me, to turn around and use creosote or carbolic acid on that fresh exposure. I have always wanted to ask him if he cut his finger, would he treat it in that way. Now, if you can get something that is nonirritative and close it up without medication it is all right. You would not want medication if you simply wounded your finger, but would close it up and it would heal by first intention.

Dr. BRIMMER: I think it is claimed that that is just what they want to use—carbolic acid. It produces an artificial membrane and keeps the air away from the wound. Nothing will ever heal until nature throws out a membrane to shield it.

Dr. DICKINSON: In the first place, Dr. Reid has spoken of the preparation as a medicine. It is simply a semi-cement. It is not a cement in the sense in which we ordinarily use the term. It is absolutely nonirritative; it is bland; it is something that the nerve of the pulp will tolerate in contact with it. When you expose the pulp accidentally in an excavation, it is very seldom a large exposure. If you could compare it with anything we could speak of, it would not be as large as the end of a cambric needle, ninety-nine times out of a hundred, and the natural retraction with perhaps a little application on there, will enable nature to take care of that without anything else.

Dr. VAN DUZEE: There is one thought that came to me which I would like to mention, and that is, if you open a pulp with an excavator, you have not got a clean exposure, but one that is contaminated by an instrument that is loaded with the very germs that destroy the tissue.

Dr. REID: I would ask Dr. Van Duzee this question Where you get this tough leathery decay, where you have exposed this pulp and the instrument has never come in contact with the nerve, but still lifted off that decay, what would be the effect?

Dr. VAN DUZEE: It is the same in either case. The leathery decay is filled with the same matter.

Dr. SPAULDING: I fully agree with what has been said by some of the doctors in regard to conservative treatment, though I have never had very much success with it myself. I believe that in some cases it may be done, that is to save a fully exposed pulp. The pulp, as we understand it, is a fleshy substance confined within the walls of the tooth, and when it becomes exposed and inflamed, if at all inflamed, there must be swelling. During the inflammatory stages of that pulp, if it is capped by anything, after being medicated, the inflammation subsides and the pulp is supposed to draw in its horns, so to speak, and assume its natural position. There is a vacuum there, slight it is true, but nature abhors a vacuum, and there is something wanting there. The pulp, if inflamed, should be treated before it is capped; before it is covered entirely it should be treated until it is in perfect health. Of course there is a very fine line to be drawn there. When the pulp is perfectly healthy it may be covered, but if the chances are against its being healthy, on the principle that "dead men tells no tales," as Dr. Robinson stated, I like to remove it entirely. Yet as Dr. Leonard said, the proper treatment for the pulp that has been removed either entirely or a portion of it, we know that in certain surgical operations the nerve still remains in many of the wounds although it has been severed, and if that remaining pulp may be restored to its normal condition, it may be covered, if covered without pressure. Dr. Stearns, in speaking of a proper capping for the pulp, mentioned porcelain, and Dr. Robinson spoke of some metallic capping. I hardly agree with those gentlemen in the capping of the pulp with a metallic cap, as it is a very delicate thing, and it is necessary to get the exact contour of that cap in order to protect it, and not have a vacuum underneath. If there is a vacuum, what are you going to fill that vacuum with? If the porcelain capping exactly fits, I may agree with the gentlemen, that it is as good as anything we can put on, but the better way would be to cover that with something as Dr. Reid has said, that would flow over it without pressure, and resume the covering of that pulp without pressing. Then it may be covered and sealed up with cement. I should hardly think of putting in a gold filling into a tooth where there had been such treatment, until I was perfectly satisfied there was not going to be any trouble following. I should fill with cement. Dr. Robinson was speaking of the cement causing trouble, or absorbing that which it should not. That I think depends largely upon the kind of fluid that the oxide of zinc is mixed with. Some of the mixtures disintegrate and give off a very bad odor. I have removed crowns where the cement was as solid as stone, and had no odor whatever. I have no doubt that we have all removed cement fillings in teeth where the cement has hardened and become perfectly solid, and was entirely free from any odor, when removing a portion for the purpose of covering the capping that has already been put in. I feel sure myself when there is a full exposure, and when there has been pain in the tooth and decay clear to the nerve pulp, that the pulp should be removed. In the case that Dr. Reid spoke of where the pulp has been wounded, I should simply touch it with camphor, the alcohol in the camphor will evaporate leaving the camphor itself, which is very healing and cleansing. One may follow the camphor treatment with a little oxyphosphate, or cover it with gutta-percha, and go on with his filling.

Dr. Dickinson: The discussion has taken a somewhat wider range than I expected, but I am glad that these views of the different members have been brought out. The premises, however, upon which some of these statements have been made, were not justified by anything that was said in the paper. The first statement I made was that the cases should be selected. I didn't say that it was justifiable or advisable to cap any pulp, if it gave pain, excepting such pain as could be immediately relieved. One gentleman made the remark, that where the pressure of food was on it, the condition would be unfavorable many times for this operation. Now, when I was speaking about the pressure of the food in the cavity causing pain, I was not speaking particularly of exposed pulps, for we know there are many pulps not fully exposed where pressure in the cavity will cause pain for the time, but it will be instantly, or very soon, relieved if that pressure is removed. I said distinctly that no treatment would take the place of the most discriminating judgment in these cases. I also said that there were cases in which I would not attempt conservative treatment at all, that devitalization was the proper method. I do not think, in a discussion of a subject like this, that it is exactly scientific to say that the ideal pulp capping would be a certain material that perhaps the gentleman had never tried, or never experimented with. I might have gone on for fifteen minutes in enumerating the different articles of which I know, and which I can refer to in my library, as having been tried. I simply took a number of those as indicating that the field had been worked. I think I could name thirty or forty agents that had been used in filling pulp canals. While the discussion has taken a wider range than I looked for, it has not been in every respect confined to the paper. It has brought out many things which I hope will be beneficial to us all, if it does not do any more than to set us all thinking. Now my own personal success is what has made me enthusiastic, and what I have done, others can do. It does require the most delicate manipulation, I will say, especially in capping exposed pulps. Even those which are most favorable will not admit of bungling work. Of course, as I said, I am aware of the diversity of opinion in regard to whether there is any use in trying to save a pulp at all, but I took the other side—that it was. If any one is satisfied to devitalize every pulp that is nearly or fully exposed, and they feel that they get the best results from that line of treatment, I have no controversy with them at all. The paper was not written for the sake of controversy, but simply to get at the best method of practice, whatever it may be.

It was then moved and seconded that the subject be passed. Motion carried.

AFTERNOON SESSION, THURSDAY, JULY 14, 1892.

The meeting was called to order by President Merrill at 2:00 P. M.

The report of the clinics held in the morning was submitted by Dr. F. H. Brimmer, as follows:

Dr. BRIMMER: The first thing is the method of Dr. Barlow of making inlays from low fusing enamel. Dr. Barlow only claims the utility of this for the anterior teeth. The cavities that take most kindly to this operation are those of approximate surfaces, keeping away from the cutting edge. Opening into the cavity from the front face he takes No. 50 gold foil and presses it accurately into the bottom of the cavity, and takes a piece of cotton on the pliers and presses that into the cavity, relying on an accurate fit to the orifice of the cavity only. Then he follows with this low fusion enamel—Timme's—and melts over a common alcohol lamp. He then adapts it to the cavity, and sometimes it takes two or three fusions to get the proper contour. I should say right here that deep undercuts should be avoided in the preparation. Then, after he gets this adapted accurately he sets in cement sometimes. I think he said that he preferred the common white gutta-percha to the cement, being tougher. Then he leaves this matrix of gold in there, and burnishes that down after he has pressed it into place. When he gets it all right to set, he makes some undercuts so as to add to the strength and anchorage of the enamel. Then when he gets that all right he heats the gutta-percha to such a consistency that it will press into place easily, and then burnishes the gold and all down onto the orifice of the cavity. I confess that I did not see this operation as well as I would have liked to, but it seems to me that it has a prominent place among the operations used in our profession, and for certain cavities where patients especially dislike the gold because it is unsightly, and in those cases where the enamel can be adapted in this way, it is a decided success. He uses Timme's enamel, which he claims is not so strong a body as Allen's, but he says he places it where leverage does not come, where the teeth are not subjected to prying, and in the mouths of those persons who are careful in using their teeth. Dr. Barlow is present, and if any of the gentlemen wish to ask him any questions, they can do so.

Dr. ROBINSON: I would like to ask Dr. Barlow if he makes any attempt to so shape this gold that it will have a retaining tendency, or whether he pays any attention to that.

Dr. Barlow: I found that to be rather unnecessary. In pressing gold into the cavity, I press it into the bottom, but I am not so careful to get it into the bottom of the cavity as to get a perfect adaptation to the edges. If there is any necessity for undercuts I cut them afterward.

Dr. Brimmer: The next clinic was Dr. Nutting's "Method of Taking Bite." His method was to wax up the base plate, taking a little square strip of wax half an inch each way, and lay around over the ridge, having the patient press back the head so that the masseter muscles were tense. Then have them change around laterally until you consider the position is right, then trimming down, leaving as a guide the lower edge of the wax for the position of the upper teeth to show below. When he gets that he has some little staples like those in use in carpentry, a kind of three-sided square, and he presses them in and fastens that right in the mouth, and then puts it on the articulator. It is a simple little thing, but it strikes me as quite important. The Doctor believes in fastening with those little staples, one in the center and two on each side. Most of the gentlemen saw this so I won't go into it any further.

I will ask Dr. Bailey to report his clinic himself, as I think him better fitted to do so than I am.

Dr. Bailey: I talked pretty well down stairs on the pneumatic mallet operated with the electric motor, and I don't know whether I have anything additional to say or not, except to call attention to the main points of the exhibit. Dr. Brimmer asked me to speak of the electrical exhibit, and of course I should speak of Mr. Perry's exhibit as well as my own. Mr. Perry tells be that the thing on which he places the most stress is the foot piece, which is very complete and compact. It does not seem to be any larger or heavier or more difficult of manipulation than the ordinary small foot piece that has been used with the engines, and he has some five or six speeds for the straight motion and two or three for the reverse. He has also made the foot piece so that the resistance is entirely by itself, doing away with the need of a resistance coil anywhere else in the office. It is completely hidden and that portion of it which comes in contact with the foot of the operator is entirely disconnected, so there is no danger whatever in dropping an instrument or coming in with wet shoes, or burning out plugs, or of the operator receiving a shock from short circuiting, or in anyway injuring the foot piece, because it is not charged with the electricity. It operates very easily with a mere touch of the foot. The Perry motor that he uses has a speed of 2,500 revolutions a minute, or it can be run at a speed no faster than you would get with the ordinary foot movement. The price of the machine, of the foot piece is $20; the motor is $32, and the bracket is $15. He wished me to say that the bracket he showed there is not the one that he intends to send with the instrument, but it was gotten up hastily, and is not as good as the one that will go with the machine. In regard to the motor I saw, it is one put out by the St. Louis manufacturing company, and the intention of the company is to furnish a motor that will allow the dentist to put on any head that they are using. The switch is entirely in the foot piece, which is attached to the engine, and the whole is arranged to be moved about just like your ordinary engine. The stop movement is a simple break which flies up against the under part of the brake which carries the band, and the chord is not caught. The advantage of the mallet lies in its simplicity, and in the light weight of it. I will say that I have never used a mallet which I liked so well, and I have never found a patient who did not prefer that mallet to anything I had used. It is certainly easier for the patient than the ordinary mallet. The advantage of having the head piece also, is that the band may be always there in place. The price of the instrument may at first sight seem more than one would expect, but I think it is worth all it costs. It is thirty dollars for the one with the S. S. White engine, and twenty-five dollars for the one with the Shaw engine. That is for the head, the pump, and the mallet. He charges fifteen dollars for the mallet alone. It is a bracket engine.

Dr. Brimmer: The next is the clinic of Dr. Peck, "Fusion of Gum Sections and New Methods of Bridge Work." The furnace is about seven by eight inches with a platinum muffle run by an electric motor. The teeth are ground up, and articulated the same as any other case, with this provision, that they must have wide V-shaped joints to allow for the rapid flowing of the flux or enamel. Then after the teeth are arranged in position and articulated properly, there is an investment with half plaster and half asbestos. After this has hardened and dried sufficiently, a little platinum wire is laid across the platinum pins, and that is fused with this blowpipe, which gives it an added strength. Then he takes that and the skeleton and invests the joints with this enamel material, putting it in the oven, or rather on the slide. There are three different movements in the gradation of the heat, as it gradually comes to the fusing point. The slide is left in the first position about three minutes, and at the end of three minutes it is raised one-third more of the distance, and at the end of three more he closes it. When he gets it in the oven he allows it to remain there fifty-five seconds. The doctor tells me that this same operation with gas will take about five minutes, so you can see there is quite an item in the amount of time saved. This operation gives quite a respectable appearance to a set of teeth on rubber. It gives the plebian base quite a patrician appearance, and it has almost the appearance of continuous gum. The doctor also showed a porcelain crown that I think comes the nearest to being the ideal crown of anything I have seen. He takes the common Logan crown, and taking number thirty-six platinum for the cap, and thirty for the band, solders the two together, and then places this enamel around about two-thirds of the anterior portion—all that will show when it is in position with the two teeth joining. The band on the palatine surface is left clear. Now this has all the benefits of the Logan crown with the gold band and with everything tight there. The cap soldered to the platinum dowel in the crown, when combined with the enamel, leaves nothing on the front face of the tooth to prevent the natural appearance. We all know that in the setting of a Richmond crown, we select a perfect match and yet when they are in position in the mouth there is quite a material difference, so that it is noticeable, not only to the dentist, but to the patient. In this case there is no break at all. There is nothing there that will indicate an artificial crown because the translucency of the tooth which is not affected by the dowel in the crown, is not changed a particle, and the enamel coming up under the free margin of the gum makes it perfectly tight, while the appearance is simply perfect. The cost of this furnace, oven and all, is one hundred and twenty-five dollars, I believe. That includes the motor and the rotary both.

Subject passed.

Dr. G. V. I. Brown, of Duluth, then gave the following "Informal Talk on Inlays." (The illustrations referred to are shown in No. 3, Vol. 6, page 189, of the DENTAL REVIEW for the month of March, 1892.)

Dr. BROWN: I think when I received a letter from the chairman of the committee asking me to give this informal talk, that he asked me to give the results of my experience with inlays. Now I can do that in five minutes, or much less, and I will sum it up in just this way—I have had a good many failures and some successes, and a large number of operations that were just fairly satisfactory. They were satisfactory in a measure, because they did all that was expected of them, and all that was intended they should do, but they were not so very much better than almost any other operation would be. But among those that I class as successes I have been able to do what I felt that I might not have done with any other operation, by reason of the conditions of each particular case. In order that you may have an idea of just what I have been working at, I have had these diagrams prepared, which I will show you.

Fig. 1. The first illustration shows a central upon which a tip has been destroyed—the cutting edge—and it is a case where this operation is not always successful by reason of the difficulty in getting the color exactly right. I have had cases with pyorrhœa, where it had done considerable harm around the teeth, and where I could not feel justified in putting a band around the teeth. I did not feel that I was warranted in cutting off this much of the crown to put on a crown that didn't have a band, and so the only thing left to do was to put on a porcelain tip, and match the two as well as possible. As far as the success of the operation is concerned, there is no question, and as far as the durability is concerned, it is perfectly satisfactory. The trouble is to get the colors, because, as we all know, they will change. I have found it a very difficult matter to do this; for instance, I have selected a piece as near the color of the rest of the tooth as possible, and ground it up, and sometimes baked it, and met with a disappointment after all. Sometimes the cement or gutta-percha, or whatever I may put in behind that tooth changes its color a little bit, and I have to make allowance for it. That is where the difficulty comes in. Were it not for that fact I think in many cases we could use that first operation. At present I only advise it where

it is absolutely necessary, because of some trouble around the neck of the tooth, or some other reason.

Fig. 4. Now, on diagram No. 2, you will see a tooth that shows two kinds of inlays. So far as this first inlay is concerned I do not question but that it is the best operation that can be performed on a tooth of that kind. Where there is such a cavity as I spoke of, extending up beyond the gum, I have not found it possible to operate in any other way. If the cavity is like the one shown here (indicating) one of those little pieces of porcelain can be fitted together very closely, and put in. Usually we may do as Dr. Barlow has stated, in regard to making them, and let the gold extend down, and burnish it.

Where I use gutta-percha, and it makes sufficient anchorage to hold it firmly, I do not care to have any gold filling. This, of course shows a kind of inlay which is less frequently necessitated. The object in that will show better when I come to the last illustration which I have. I find we can use it to very good advantage where the teeth are soft in young people's mouths, and so on. Where I formerly used cement fillings alone, I now try to put in inlay. The effect is very good, but there is quite a difficulty in getting the color to match in all these cases, although there is not so much difficulty in that respect as in the other case spoken of, because the piece is smaller.

The third diagram shows another form of cavity, and in these cases I think I have a number which I can put down as successful ones. The outline presents a corner of the tooth gone, and this shows the posterior portion of it when it is made from a little piece of porcelain, ground down to fit the corner in a large cavity, when it is baked and burnished to fit the inside of the cavity. This can be made all of porcelain very nicely indeed. I think the body that Dr. Barlow used this morning is not strong enough for these cases. We have used the Allen body generally, and we get the color nicely and the operation is very satisfactory. Of course it is chiefly necessary where, for some reason you do not want to put a band on the crown, or where the tooth has been badly handled before and there are checks across the front which would make it very unadvisable to put a gold filling in. I have a great many of those cases that have been treated in this way very satisfactorily.

The next diagram shows a gold inlay, made just from gold plate. I take the tooth and get as good an impression of it as possible and take a piece of gold plate, bending and crimping the edges, and by trimming to fit the cavity I get a very fair outline of the tooth and generally a very satisfactory result. If it is possible to use a pin, as shown in the illustration, the cavity can be filled with gutta-percha, and the inlay pressed into it.

The next diagram shows the same kind of a case in which a piece of porcelain has been laid. The platinum has been burnished to the outline of the cavity and the porcelain baked to fill up the cavity and round it out; then I take a disc and go around the edge of it, making a deep groove in the tooth. I put amalgam around the walls, and put the inlay in there tapping that with a mallet into the amalgam, smoothing off the edges. By doing that I think I get a better filling than the amalgam filling alone. By using this method you get all the advantages of an amalgam filling and have no shrinkage. Your amalgam is bound to fit the edges perfectly, and you can get the contour of the tooth very perfectly. You can do it in a very few minutes and get a more perfect operation than you can get with an amalgam filling.

Fig. 6. This diagram is intended to show a place where it must be used with either porcelain or gold. This is a broken down bicuspid, and the conditions under which the operation would be advisable are just the same as the first one that I showed you. A common bicuspid tooth, ground to fit the outline, and made the right length, will do for the lateral part.

And platinum burnished to the outline of the cavity, a pin set into that and soldered, and then the intervening space filled with the Allen body and baked, makes a very nice operation, when set in there with gutta-percha. You are perfectly sure that your tooth is free from any danger of decay, and of course, being solid, there is no danger of the tooth breaking or softening. In using gold, it is simply a matter of sliding the gold in. It sometimes happens—I have one case particularly, where the patient had a great deal of trouble with the gums, and I did not want to put in a crown, so I filled in this inner cuspid, and made the gold to fit around the outer walls and I think it protected it perfectly.

Fig. 5. The next one is intended to represent a lower molar; the tip may be abraded or broken down. At any rate, the tip is gone, and this is intended to show a gold tip put on there. In putting those on I generally use gutta-percha if possible. I tap them down in place, and I find they hold very firmly. The

line is so slight that it does not make the slightest difference, and I find they last for years. The gums had receded down below the bifurcation of the root, and it was not possible to make a perfect fitting band down between these roots. I have been able to use this in other cases where I wanted to lengthen the bite, and it worked very nicely. If you can only get your anchor in the center it will do very nicely.

Fig. 10. This next diagram is taken from a case I have had four or five years. I wanted to show, if possible, the possibilities of this operation from an artistic point of view. I have not brought that forward before, because I do not always believe in it. As I said in the first place, these inlays do not look as well in the mouth always as they do on paper. In this case that molar is a live tooth with checks across the front. It would have been necessary to kill that pulp and take off nearly all that crown, in fact, I would have had to put a crown on entire. This tooth had a cavity such as you see there. This other one had a very much larger cavity and the same conditions were present as in the first one. Now that inlay is made of a piece of plate-tooth, backed with gold, and allowed to extend into the outline of the cavity just as my finger would show there. This was fastened with gutta-percha. There is no strain on it, and therefore there is no reason why the gutta-percha could not be used. Those others were fastened with cement. Now, this work is unquestionably successful. The mouth had been badly handled before the patient came to me, and the gold fillings looked badly. I had no assurance that I was any more capable than the last man that filled those teeth, and I had no reason to believe that after putting my patient to the pain and trouble of a number of hours hard work in refilling that she would have anything very much better. I knew that the mouth would look very unsightly. There was no appearance of decay around there, but this cement as it disintegrated a little bit left a very slight line between the enamel and the inlay. I dried that out with alcohol, and hot air, and then wiped over with eucalyptus, burnishing in a little gutta-perch. That is the reason, I think, that the cement lasted so long. Cement is temporary, and you must regard any operation where you use it as temporary. It needs watching. Where you can get gutta-percha to work I look upon it as a superior operation, wherever it will hold. Now Dr. Peck spoke this morning in his talk on banding teeth, of the difficulty which he believed

many dentists experience in making perfect bands. I am satisfied that a large portion of the crowns and bands will ultimately fail in themselves, or be the cause of failure of the tooth. I think that just in the proportion that the crowns become more perfect will these bands be reduced. They are necessary now sometimes, but I do not believe that they always will be, and so long as the method can be avoided I do not believe we ought to put on crowns where this other operation will answer the purpose. I believe that anything I can do which will serve the purpose as well should be done, and then when nothing else will do, put on your crown.

Dr. Reid: I would like to ask the doctor to tell us more about this matter of gutta-percha.

Dr. Brown: In using these small inlays I take the cavity and dry it out with alcohol and hot air, and then put in a little eucalyptus and leave just a little of that over the surface also. Into that I put my gutta-percha. I find that the chloro-percha and the softened gutta-percha have not resistance enough. There is not resistance enough to hold an inlay or anything else permanently, but when I work in a little gutta-percha with that and put my inlay in—if it is an inlay of this sort, I put it in without a great deal of pressure and hold it there for a moment or two until it has begun to cool, as I think that helps it to a great extent. I find the operation very satisfactory. I depend upon gutta-percha mainly where I have a root canal, and a pin right about there (indicating). In that case I simply fill my tooth with gutta-percha and heat the inlay, pressing it home hot. I use gutta-percha almost entirely on crowns. I have almost given up cement. I use alcohol and hot air, and then after that eucalyptus, and a little gutta-percha just at the neck of the tooth. I like the red gutta-percha for the back teeth, because it softens and presses in down around the neck of the tooth and makes a nice, clean cement. When that hardens and sets I am satisfied it will be satisfactory.

Dr. Lyon: I want to ask Dr. Brown a question. He says where he can get gutta-percha to hold firmly he considers it a permanent operation. Well, now, who would not?

Dr. Brown: What I meant by that was just simply this. There are cavities so shaped that when your inlays are placed in them there will be very little tendency to dislodgment; there are other cases where the pulp is destroyed where you can put in a pin, and have no doubt but that it will hold. Gutta-percha is not capable of holding as cement would. We can put an inlay in with cement in a comparatively exposed position and it will stay there as long as the cement stays, but gutta-percha will not do that. What I mean is, if your cavity is a deep one, and your inlay is out of the way, it is all right.

Dr. BAILEY: I would like to ask the Doctor if he deems it necessary to heat the crown in pressing it in.

Dr. BROWN: I think if it is a gold crown and I put on a thin layer of gutta-percha, that it is. I want the crown hot so that the gutta-percha will stick to it. I use as much gutta-percha as will fill that cavity. Sometimes I put it on temporarily, and take it off again, so as to get an idea of how much will be necessary. My method is to heat the crown with the gutta-percha in it until the gutta-percha softens and sticks to the crown. I put nothing on the tooth in the mouth except the chloro-percha and the eucalyptus, and that used with the chloro-percha will not dry and come off.

Dr. BAILEY: Do you not fill the canal in the root with gutta-percha?

Dr. BROWN: Where I have a root canal I fill it with gutta-percha, but I was speaking more particularly of gold crowns where there was no pin.

Subject passed.

Dr. W. D. JAMES TRACY then read his paper on "Pulpless Teeth." See page 237.

The paper was received with applause, and the discussion was opened as follows, by Dr. C. H. Goodrich:

Dr. GOODRICH: In opening the discussion of this paper I suppose it is my duty to keep entirely within the boundaries defined in the paper, and I am afraid that you will think the discussion somewhat stereotyped, inasmuch as I have nothing new to offer other than what you are already very familiar with. The Doctor has given us a very good paper on the subject. He speaks of reflex action and states that in diagnosis it is not safe to rely on the judgment of the patient. Now, in my practice I do not know that I ever had a case where there had been a pulpless tooth with reflex action from it. A pulpless tooth, where it begins to give trouble, is a local irritation of itself. The symptoms are those of soreness and pain, especially upon pressure, and it is not necessary for them to have reflex action. I think it is purely local, and disagree with the Doctor upon that point.

He speaks of unconscious action. I am sure that you do not have any unconscious action where you have a disease in a pulpless tooth. If you have any action there at all the patient is generally very well aware of it, and comes in for immediate relief. I read of a case where the patient had been suffering from neuralgia caused by a dead tooth, and if that can be called reflex action, I presume the Doctor was right in making his statement. In regard to his treatment, he uses about the same treatment that I do. I always apply the treatment as promptly as I can, and keep the tooth entirely isolated so that nothing will get into it except what I place there. In the discussion I shall take the liberty of reading to you a portion of a paper written by Dr. Harlan and published in the DENTAL REVIEW. It meets with my approbation, not only because it is a very scientific paper, but because it is the way that I treat pulpless teeth myself. (Reads same.)

DR. BROWN: I do not know how wide a range of discussion is allowable on this paper; it says treatment of pulpless teeth, and that may mean a good deal, or it may not. To keep the discussion directly within the confines of the subject, as Dr. Goodrich did, narrows it down considerably. Reference was made to reflex action, and the possibility of its effect in the way of pain of different parts. Now, a pulpless tooth may be one where suppuration has already begun, and when you open up that field it furnishes considerable for thought and discussion.

Lately I have had called to my attention a class of cases that I think we all have very much oftener than we realize, and those are the cases where trouble has extended from the antrum. Now my usual experience with those cases has been where there has been trouble in the antrum, there was active suppuration going on and pus forming. I have had a number of cases where I did not have the usual causes to warrant my going into the antrum, although I was satisfied that there was trouble there. I will cite a case of a patient who had not been able to eat very much or sleep very much for some little time. In consequence he was almost a total wreck. The man had had an abscessed molar a year or two ago. I found no connection at that time between the antrum and the abscess, and filled the root in the usual manner, and it got well. He never had any more trouble from that tooth especially, but he had a catarrh, as he called it, begin shortly afterward. He had a catarrhal condition with a feeling of fullness. The reason he could not eat was because of the nausea he had experienced at the sight of food, especially in the morning. I guessed what the trouble was and took off that crown and went into the root of the antrum on my own responsibility. In ten minutes I had given him relief, such as he had not had for many weeks. I have two other cases that I am going to treat the same. There is nothing there except that catarrhal condition, that feeling of fullness. In these two cases they have had their nostrils bored out once or twice without affording relief. It seems to me that the same membrane that lines the nose lines the antrum, and when you have a catarrhal condition I do not see how it is possible to eradicate that by treating the nose alone when this complication exists. I do not question but what the secretion works through the opening of the antrum and is held there, and you have a constant revival of that catarrhal condition. It is bound to recur, and opening of the antrum will relieve it.

I had another case recently of a woman who had a great deal of trouble in this region and called it catarrh. I think two treatments stopped the trouble and gave her relief. I was just wondering whether we could not discuss that subject under this head. Perhaps some of the other gentlemen have had the same experience, and that is why I call attention to it. I am satisfied that I have had three or four cases of it in which I was warranted in going into the antrum and cleansing it thoroughly. There was no other cause in those cases for chronic catarrh on that side of the head. I was very unfortunate in not being here yesterday when Dr. Dickinson read his paper. I think there are some points in that paper which might be brought to bear a little bit on this subject. The Doctor spoke of cleansing the tooth and burring it out and opening it up. I am a great believer in that, and I am very anxious to see it done as well as possible.

Dr. James: As Dr. Goodrich seems to be opposed to the theory of reflex action, I want to cite a case that I left at home when I came here. About six weeks ago I found a pulpless tooth in the mouth of a lady that I treated—the second superior bicuspid—and to all appearances I had it thoroughly cured. The Monday before I came here she came back to me complaining that her cuspid tooth was giving her great trouble, and also said that the lower cuspid was giving her trouble, and wanted I should look at the central and lateral incisors. I went to work and tested the second bicuspid that I had treated and filled, and as it did not respond to the test I concluded that the tooth was all right. I found that the cuspid tooth had died of its own accord since this operation. I had two small fillings in it, in each of the proximate surfaces. I could not make up my mind that that was the offending tooth, but I went into it and found a dead pulp, and removed it before I came here. Now, I think, inasmuch as she complained of trouble with the lateral and central incisors—she could not tell which it was—and also of the lower cuspid—the tooth had not gone far enough to become loosened at all or raised up by the inflammation—that was one case which demonstrated the fact that there is such a thing as reflex action, even in a pulpless tooth.

Subject passed.

President MERRILL: The next essay will be one by Dr. C. H. Stearns, of Zumbrota, on "Immediate Root Filling." (See Dental Review for March, page 183).

The discussion was opened by Dr. L. W. Lyon, as follows:

Dr. LYON: I am sorry that I could not have had this paper to look over before opening the discussion upon it. There is one thing that I wish essayists after this would do, and that is, to give the doctor who is to open the discussion of the paper time enough to form some views that will be comprehensive enough to interest the members of the society, and especially those who come a long distance to attend these meetings.

The first point that I take exception to here, is the cementum closing the apical foramen; that, I think, is something new to me, and it may be new to a great many of the dentists here.

Dr. STEARNS: How is it closed then?

Dr. LYON: It is not closed at all.

Dr. STEARNS: Very often we find that it is.

Dr. LYON: Well, that is something that I don't see how you can account for. You certainly cannot do it by any line of scientific reasoning.

Now in regard to the instantaneous removing and filling. That is all right after extirpating the pulp. The question is, how long should you allow that pulp to remain in before extirpation. There are people to-day who think there is a continuity between the pulp and the fifth pair of nerves, and you would have to stand up and argue that point for quite a while with them. Science tells us that there is no such connection. Again, there are people who think they can discover a nerve in the pulp. Well, it is a very difficult thing to do. Now, in the extirpation of the nerve. it should be allowed time. How many of you are there who have not found cases where there was sensation existing after extirpating the nerve, and you deemed that possibly the nerve was not all removed. It is sloughing of the odontoblast that makes it necessary to wait seven or eight days before you can proceed. I think where you have extreme sensitiveness in the roots that it is from that cause and that cause solely. I have had them, and many of you have had them and recall them now. The only way which I see that it would be possible to remove them immediately, would be with a drill, and in a tortuous canal, you know how almost impossible it is to do that. That is about the only thought that I gather here, and about the only point that I want to disagree with the doctor on.

Dr. KNIGHT: It strikes me that the essayist and not the speaker is right upon this question: In my practice, the best success that I ever had in filling roots immediately, or at any time, were the roots of teeth that I had previously—perhaps a day or two before, removed the pulp in. However, I have had, as he said, trouble sometimes. I do not think I can lay it to the odotoblast, because I think those odontoblasts are so minute as to be incapable of giving trouble, and I think that the trouble comes from waiting too short a time before extirpating the pulp, or in not waiting long enough to enable the pulp and the membranes there to slough. In my cases, I believe the trouble has been from hæmorrhage external to the root. Filling the root immediately does not stop the vessels from bleeding. They will bleed and the blood cannot find a way out. It is pent up there and is a source of irritation, causing soreness of the tooth, and trouble follows. I agree with the essayist upon immediate root filling. Of course the essayist took the ground that the only thing you had to do was to get the parts aseptic, that after you had got rid of the pieces, they could be filled then. I do not believe that in a case of blind abscess the tooth can be filled immediately with any success.

Dr. BROWN: Dr. Knight says that the trouble he has had has come from not allowing time enough to elapse, and then in the next breath he says that he believes in immediate root filling. I would like to know what the doctor means by that.

Dr. KNIGHT: I said in many cases.

Dr. BROWN: That, however, is not the point I want to get at.

If we get all that pulp out of there I do not see any objection to filling the root immediately. You may have some irritation, however, that you would not have, if you should wait a day or two. What I am getting at is, that the doctor in his paper referred to a case in which he said the only cure was replanting. I do not favor the idea of going back ten years in the practice of dentistry. Last year when I was at New York attending the meeting of the Dental Society there, a paper was read by Dr. Marshall, of Chicago, in which he took this same ground. Well, they disagreed with him entirely, claiming that the operation was almost obsolete. Now, when you take this tooth out and replant it, what do you accomplish? You simply break up that sac. Now, it is just as easy to break up that sac in another and better way (draws sketch). If you take that out and put it back again, you can cure it—I will admit that all right enough—but you are taking chances all the way down here in this portion of the tooth, and you will probably ultimately lose the root. The history of this operation is not that of an entirely successful one. Now, I cannot see why you cannot come in here, (indicating) and clean that all out, fill your root and let it get well. We do it almost every day in the office, and sometimes, when we have the right kind of weather, we do it three or four times a day. We fill those teeth either the same day or the next, and I have never seen one of those cases that did not get well. When they do come back, I have always found that there was trouble in the next tooth. If you take that tooth and make an opening at this point, which I will indicate, and bur out all this in here, you certainly cleanse that much better than you would in the way that the doctor proposes. It is not so very painful once you get through the outside. You can pump through the gum and cleanse that absolutely. You do not have to do any guessing whether there is anything to be formed over the root or not, for you have gutta-percha there and you do not care. I do not always find my fistulous opening in a direct line where I want to pump through. Now, what is the use of preserving that fistulous opening, when it may be away down here (indicating). That is one of the very things that we want to cut away.

Dr. Reid: That may be true, Doctor, but if you take the Jennison syringe and treat through the canal and apical foramen you will certainly involve all that before you get through.

Dr. Brown: If the position of the lip is such that there is pressure there, you cannot get through with a syringe. I see no need or advisability of saving that pus sac there, or the tissue that surrounds it. I want to cut it all away.

Dr. Reid: That may be true, but it is a heroic treatment. I want to tell you another thing, and that is, that it is not every man who can use a bur and strike exactly where he wants to.

Dr. Brown: Dr. Stearns spoke of mechanical treatment being the best, and it is. Of course you can use your antiseptics too.

Dr. Knight: Dr. Brown, don't you sometimes have the roots of live teeth standing near the opening.

Dr. Brown: If the pus sac extends over the foramen of the end of a live tooth, I am not afraid to touch it. There is no danger of that at all. As I said a moment ago, the only time I have ever had any recurrence of trouble has been where I found the next tooth had been destroyed, and the pus had extended over there. The method I have described, I simply suggested as being the accepted method of treating those teeth.

Dr. Brimmer: I think that sometimes the canal of a tooth offers a good chance for drainage, but not always. I think teeth are sometimes treated a long while through the canal after there is no trouble there. I think that the fistulous opening is an indication that there is a root there that we cannot fill very easily. I would not always advocate carrying the bur up there, but I think I would inject with the different remedies. I used to treat through the canal of the tooth for a long while, but of late years I have had the best success in cases of fistulous opening, where I think the tooth is sweet and clean, by taking a fine instrument with a barb in the end, and rolling up a little cotton on that, then dipping it in carbolic acid and carrying it right up through the opening in the gum, continuing this every second or third day. I find that carbolic acid used on new tissue will promote activity. I think sometimes that we treat teeth too long through the nerve canal after there is no trouble with the tooth at all. I would like to know if I understood Dr. Lyon right when he said there was no connection between the fifth pair of nerves and the pulp.

Dr. Lyon: I said there was no continuity.

Dr. Davenport: I have treated several cases where there had been fistulous opening and breaking down of the gums, and I have used one of these little rubber cups, the same as we use for cleaning teeth. I forced my medicine up there, and sometimes, when the syringe did not force it through entirely, I would take that little cup and put it on the outside and draw the solution through.

Dr. Lyon: I remember a case of a right central that had been an abscessed tooth that had been cured and remained so for a number of years. The nerve became exposed in it and through that it developed an abscess that necessitated extraction of the tooth.

Dr. Bailey: I understood the essayist to say that in those cases that were not giving much trouble, where there was a dead pulp, that there was no difficulty if we cut them out carefully and kept the cavity filled with a strong antiseptic solution. I understood him to say afterward that he believed in nothing but mechanical treatment. Now, what did he mean by a strong antiseptic treatment?

Dr. Stearns: I consider that the use of antiseptics comes under the head of mechanical treatment. It is simply mechanical, whether we cleanse either with a solution or an instrument.

Dr. W. A. Robinson: Dr. Knight said that he had had trouble with immediate root filling, and laid it to the fact that hæmorrhage takes place. I do not know that I can agree with him on that point, and for this reason. Now we all know that the dentine is largely penetrated by the canaliculi, and those are filled by fibrilli. It does not seem possible that if you go to work and take out a pulp, and still leave those in there, that there will be more or less decomposition from those fibrilli which may communicate with cementum, and set up inflammation in the root. Dr. Brown has spoken of treating abscess of the tooth by a rather heroic method I think. My own method of treatment for the last few years has been to enlarge the apical foramen sufficient to allow the medicine to pass through, and if there are no fistulous openings, I will not hesitate a moment in making one, and then inject a solution first of warm water, and a little salt, following that by peroxide of hydrogen, and probably repeating that every two or three days. After that I will close the root, and in my experience of five years' practice in this State, and some outside of the State, I do not remember of ever having to extract a tooth on account of this trouble. It seems to me that some time should elapse before closing the tooth in order that the medicine may either penetrate and render it antiseptic, or that it should be so well dried up as not to cause any further trouble.

Dr. Harrison: I am not a member of the association, but I want to take a few minutes. I think there is a positive and sure way to fill such a root. That really is the most simple case we have to treat. If there is a decided opening, leave the opening. Sometimes in a scrofulous patient, it may not heal up, but in my experience of nine years, I have probably met with not over two or three cases in which this abscess did not heal up in that way. My method is to simply open up the canal, using the drill, and cleanse it out. I think the mechanical method is the best, and as I said, I use the drill and cut this foramen out thoroughly. I have treated a number of cases in nine or ten years, and I do not see where the necessity comes in of burring these teeth out, burring out this cavity, as Dr. Brown has suggested, because I believe nature will almost invariably heal that opening up. In regard to immediate root filling, I will say, that I have very often cured the tooth one day, and the very afternoon of the same day have filled that root with positively no inflammation or trouble afterward. I regard it as the very best way of treating teeth of this character. It seems to me that the principal thing is simply a mechanical stoppage of the apical foramen, and the most simple case involved is a tooth with a fistulous opening. It can be treated just the the same way, and the fistulous opening makes it easier.

Dr. Brimmer: Nature, as a rule, will do her work well, but I have had cases—and I do not know why my practice should differ from that of others—which would not heal up. Nature has too much on her hands to do in some of these cases. We all know that pus is a poison, and when it collects in that sac there to such an extent that it cannot be carried out by absorption, we are going to have trouble. We do not always recognize what absorption does in the system. I am reminded of it very often by having a tooth on the lower jaw affected in some way, so that we have to extract. Now gravitation will not allow pus in the lower jaw to escape as it does in the upper one, and the question is, where does this pus go to? I say it is carried off by absorption through the system. When we have that sac in a fistulous opening, and nature cannot carry that pus off by absorption, we will have to make this opening spoken of. Now I have tried to find out what I can about this matter, and yet I cannot always heal these openings up by letting them alone. I have to go in there and cleanse them out, sometimes using extreme measures, and I have to put in carbolic acid, poke it in. Nature will not do this wholly, and you will have to clean it out yourself.

Dr. Davenport: I see that Dr. Hill, of Fargo, North Dakota, is with us, and I would move that he be extended the courtesy of the floor, that he may take part in the discussion.

President Merrill: The motion is unnecessary, as it is understood that the courtesy of the floor is extended to all visitors to the society. I know that we would all be glad to hear from Dr. Hill.

Dr. Hill: I don't know that I have anything to add to what has already been said on this subject, except that I have been very much interested in it. I will say, however, that the discussion does not trouble me half so much as the cases do when they come into my office. They give me lots of trouble sometimes, and I have been unable to find any one thing that would tide over every case. I have had to cut and try a great deal in my practice.

Secretary Leonard: In all this discussion this afternoon I have not heard the remedy, iodine, discussed at all in connection with these pus cavities and sacs. Now we know that in surgical practice iodine is used in almost every case for all such pus sacs. For instance, hydrocele is invariably treated by the injection of iodine. My method of treatment in a case of ulceration with a sac is to inject with iodine after making an opening through the gum, if I cannot get the remedy into the root canal or up through the apical foramen any other way. I think if that is thoroughly done there is no need of cutting out at all. That will do what the mechanical work does, and it is also a stimulant and has a healing effect that is marvelous.

Dr. Brown: I would like to ask the doctor if he would apply iodine to all the surface of the sac? I do not deny that iodine will do the work to a very large extent, but I think there are a large number of sacs that you could not possibly put iodine into every part of them because it would take considerable pressure to do it. You would not dare to apply that pressure unless you had an opening on the outside. I refer to those sacs that have corners and pockets in them where, by reason of obstruction, the sac has assumed an irregular shape. I do not think it is possible to do that. I do not question that where there is a little sac in a regular position and all that, you can do as the Secretary said, but when you can bur into that and cleanse it, and fill that canal the next day or the same day, you do not care if there is a little irritation or trouble there.

Secretary Leonard: That is a thing that is impossible to do on the palatine root of an upper molar, for instance, and I do not think it is necessary to get the remedy to fill all portions of this sac. I think if you strike the main seat of the trouble, and it is broken up there, that the attachment is broken up, and the remedy breaks up the most of the sac, then nature will have sufficient force to carry off the rest, and it will either be absorbed or washed out. I agree with the Doctor in opening up from the outside. I do that, if I cannot get through the root canal, but I frequently drill right through the root to the seat of the trouble, whether it follows the nerve canal or not.

Dr. Jennison: There are certain facts connected with the different papers that we must not lose sight of. If we are correct in our diagnoses of these points, the results will take care of themselves. In a root where the pulp has been recently devitalized if it is thoroughly removed or nearly so, and any fibers remaining sterilized, I think there is no question about the advisability of immediate filling. Where the pulp has been in a depressed condition there is a fairly good chance that some of that material has been carried through to the apex of the root. Where it is, we usually have plain diagnostic symptoms. If the fistula exists the treatment is simple—you cleanse the root thoroughly and seal it. When we say sealing the apical foramen, we do not always cover the ground. We sometimes find an extra foramen half way down the root and sometimes two or three of them. Simply sealing the apex does not always stop the others, and unless that root canal is filled, it will naturally form a receptacle for different fluids that will act as irritants. Filling the entire root down to the apical line is necessary. If the inflammation around the root is simply a thickening of the membrane due to a slight irritation, nature will very frequently cure it without further trouble. Where it has gone along to a point of some abnormal growth of that portion and decided thickening of the membranes, or possibly in connection with it, quite a calcareous condition of the surrounding parts, which we often find, something more than mere letting alone has to be done to produce a permanent cure. Where it is right at that point, outside or external to the root, I should say, without hesitation, that we ought to use the heroic method. The cause which exists there must be removed in some way, and it is not much more painful than any other method, while it is much more effective. Take a sharp bur, using some local anæsthetic, if you wish, and remove it thoroughly. Where the case is simple and of recent origin, and the inflammation is slight, I do not think this is necessary, but that a little palliative treatment and sealing will do the business, letting nature look after the rest.

Dr. Stearns: In closing this discussion, I do not know that there is anything that I can say further. Some of the particular points which I wished to emphasize have not been discussed as much as I expected. Perhaps I didn't emphasize them as strongly as I should have done. There is one statement I made here which has not been criticized, and that is, I said that this space at the apex of the root could not be healed no matter how long you treated it. It will not heal under any circumstances. I expected to hear that contradicted, but it has not been. Dr. Lyon, in speaking of the closing of the canal at the end, disagrees with me, for I think it does close sometimes. I think in a great many cases it closes by a sort of exostosis, if I may use the term, which causes a deposit there which gradually rounds over and closes it up. Now, in cleaning the foramen we must use some instrument which will pretty thoroughly wipe off any animal matter remaining. We have live tissue there and I seal that opening. That is the point, and the only point that I care about. Of course, if we have more than one foramen at the point of the root, or the side of the root—as I said before, I did not touch upon a case of that kind. It is something that we often meet but still we can lay down no rule for treatment. It is a case that demands good sense, and that is all we can apply to it. The only question, as I said before, is in the application of the same principle which governs in the others. I think that Dr. Brown brought up another point in describing his treatment in a case of abscess of long standing, that of opening through the gum. We never find a newly filled root corroded or eaten away at the apex in recent or acute cases. To find that eaten away in that manner, we must take a case that has been in progress some considerable time there, in which there has been pus standing for a long time, until this cementum has become perfectly inert and decayed by the fluids of that pus sac. When we do get such a case as this, as I said in my paper, the only thing you can do with it, is to resort to replantation. The Doctor advocates burring it out. Well, perhaps that may not be quite so heroic, but I think in the end it would be a good deal like the Dutchman and the dog. He didn't want to cut his tail off all at once, because it would hurt him too much, and so he cuts off an inch at a time. I believe that the only way I can possibly save that tooth is to take it out in this way (draws diagram). We have this space here corroded and roughened. Now, if we tear away this pus sac, even if we cut off the point of that root, we have the dead tissue here. If we cut through the cementum and cut off this rotten portion, we have cut down to the dentine. That is dead and if you leave it in that condition it will surely decay and be eaten away still further, causing further trouble, and ultimately you will lose the tooth. This is invariably the case. Another point in this treatment, that I might bring up as an illustration—I know a friend of mine who tried it—is to take the root and polish off the cementum and fix it up in good shape, getting a nice new surface there. Of course decomposition set in with the usual results. The only thing to save that is to cover it with gold and burnish it down carefully. Then you protect that dead tissue at the point of the root, and you will find that it will be successful—at least I have always been. I have tried this method of cutting away, and I find the result as I have stated. Perhaps the doctor may have some way of overcoming the difficulty, but I do not know how it can be done. Dr. Knight, I think, spoke of having trouble from hæmorrhage, and I think he is wrong there. If there was any hæmorrhage there, it must have been so slight as to have no effect whatever ; even what hæmorrhage could be in a large pus sac in acute abscess will be reorganized, and you will find it will give you no cause of trouble after you have sealed it up. But mind you, in all these cases, it must be sealed at the apex. I think the great difficulty with all these cases, is that you do not seal up the apex. (Diagram.) You usually cut down in this way, and you leave a little cup here for the fluids to gather in. Nature, of course, will try to do all she can to force this back, but it keeps up a continual source of irritation. In speaking of the decomposition, as I said before, I spoke only of the treatment at the apex. If that is successsful this decomposition will have no effect. I think it is well to cut right into the trouble, and if there is no putrescent substance there, then by sealing that immediately you will have no trouble. If it is infiltrated with the putrescent matter or some of the results of putrefaction, you must get rid of that, or the result will be discoloration and effects of that kind. If you seal up the foramen, you will not have abscess resulting.

This closed the discussion and the subject was passed.

President MERRILL: The next thing on the programme is unfinished business. Is there any unfinished business?

Dr. WEEKS: There was a committee appointed to have entire charge of the work of the Columbian Dental Congress. I have the honor of being Chairman of the committee composed of Drs. Robinson, Jennison and myself. Its duties are rather comprehensive. It was the first committee appointed and one of its duties was to make an effort to awaken an interest in the State concerning the coming Columbian Dental Congress. Its next duty was to take in charge that portion of the work which was decided upon by the executive committee, historical in nature, in which each State through its committee, is to present a list of all the reputable dentists in the State, their history, so far as their profession is concerned, and so on; what contributions they have made to the science of dentistry, etc. That work is now in progress, and we feel that we have a right to ask individual coöperation with the committee in it. It is not necessary to ask for the coöperation of the society any further than to urge those who have not responded to the communication sent them by the committee to do so as early as possible, in order that the committee may have its report in proper form at an early date. All the matter that comes into the hands of the committee is edited and put into the shape of a report to the executive committee, or to Prof. Jenks, chairman of the State committee. That report will be a feature of the report of the proceedings of the World's Columbian Congress, and it will be a very prominent feature. We have the honor in Minnesota of having a committeeman on the reception committee, Dr. Dickinson. We have another member on the membership committee, Dr. Bailey. Then there is a further committee appointed on finance to look after the collection of money, and that is in the hands of Dr. Reid and such other gentlemen as he may see fit to assist him. Now, we come to another point. We have the finances in good hands, and the historical part in good hands. Now, there are to be essays, reports of clinics, etc., and it has seemed to your committee advisable to recommend that whatever is presented from the State of Minnesota, in this line should come as the offer of the State Society, and we recommend that a committee be appointed from the State Society, that the State Society take action in coöperating with this World's Columbian Congress and appoint a committee to look after the presentation of the essays and such other matters as the members of the profession in the State may desire to present. I think that this covers the ground, and expresses the sentiment of your committee.

Dr. Brown: In view of what Dr. Weeks has said, I move that a committee of three be appointed to attend to the matter of essays, etc., and that they act in connection with the committee of the Columbian Congress.

Motion seconded and carried.

Dr. Brown: I will add that I meant to have a committee ap pointed by the chair.

President Merrill: I will appoint that committee later.

Dr. Weeks: I will say further in behalf of your State committee, that any suggestion from any member of the society or profession will be gladly received by that committee.

Dr. Reid: In connection with this same subject, I want to say that within the last ten days I have received the appointment from Dr. L. D. Shepard chairman of the general finance committee. He wrote me asking me to take the position of chairman of the finance committee of the State, and as Dr. Weeks has stated considerable with regard to the action of the general finance committee, I will read this circular which I received a few days ago. (Reads same).

We are going to have a number of eminent visitors from abroad, and we want to treat them well. We stand at the top in dentistry here in the United States, and we do not want our visitors to come here and not be well treated. We can afford to give a little money to that purpose, and I know that the members of the society are perfectly willing to contribute to a fund to entertain our visitors. I understand that the transactions of the Congress are to be bound in as good form as any of the text-books we have. If you subscribe $10 you become entitled to a copy of the transactions as well as the privileges previously mentioned. We want every man to subscribe an amount that will entitle him to the published transactions if he can do so, and we want every man of the society to go down there too. There are 15,000 dentists in the United States, and a contribution of $2 from each one would make the required sum. You all know what a small proportion of that 15,000 you can ever get to do anything of this kind. Now, this money must be raised, and if it is raised, it will be subscribed by a small proportion of that 15,000. Now, the question is simply this—we, as American dentists, stand at the top of the ladder compared with any other nation; do we not want to speak up at this time and carry this thing through as Americans carry everything through? I put it on the ground of national pride. Now, I have a subscription list here to-day—the time was short and I simply drew up a little heading here which I will read for the benefit of all of you, and which I thought would cover the case at this time, because I wanted to see as many of you personally during this meeting as I could. (Reads same).

Dr. Weeks: It is probably apparent to every one that there is considerable headwork behind all this business. There are a good many dentists—principally in Chicago—who are devoting a great deal of time to this matter. I know of quite a number, who are meeting the expenses of these committees, and that is no small item, the bill of printing of the executive committee alone is quite a large one. I know that that money is coming out of the pockets of a very few men. In regard to the published transaction, it has been arranged that any man, whether he is a member of the State Society or not, who contributes to the fund, will receive a copy of these transactions. The historical matter alone will be well worth all that it costs.

The contribution of essays, etc., is entirely separate and distinct, and a man may contribute an essay without being a member, if he wants to. It is all arranged so that a man may contribute what he pleases, and he will get value received for what he contributes. Now, your committee felt that in addition to the $30 that is asked, which gives everything we have to sell, that they could afford to contribute $10 extra for the entertainment of the visitors. We do not ask anybody else to do that unless they want to. It is not a society matter at all, and I hope no member of the Society will feel that this is a begging committee or anything of that kind. The members may contribute personally from their funds as they see fit to, as a matter of national pride.

EVENING SESSION, THURSDAY, JULY 14, 1892.

The meeting was called to order by President Merrill, at 8 o'clock.

Dr. Davenport was appointed Secretary pro tem in the absence of Secretary Leonard.

The minutes of the afternoon session were read and approved.

President Merrill: The next thing on the programme is the consideration of the resolution offered last year for the purpose of changing the time of meeting of the annual convention of this Society.

The resolution was then read by the Secretary. After discussion, a vote was taken.

President Merrill: In accordance with this vote our meeting will be held in September. The next thing on the order of business is a paper by Dr. W. J. Brady, of Granite Falls, on "Treatment of Proximate Surfaces."

Dr. Brady: The programme states this is to be a paper, whereas I only promised the committee a lecture, or rather a talk. It is impossible to do this subject justice except by a much more elaborate effort than I am able to give to-night, but by the use of the blackboard I will try to make plain some thoughts upon the treatment of proximate surfaces. This subject has been much discussed of late and may seem a "chestnut" to some, but there is plenty of room for improvement in methods in this work yet. Too little thought is given to this by most men, and what is more important too little care in work. I will now show a few cases and their usual treatment, and try to make plain their faults and give better methods in place. The first I will consider is a case like this (indicating) where a cavity exists in the distal surface of a central incisor. From the front this cavity shows but little, from the back not at all. The cavity is not deep, the pulp is not inflamed; in short, the patient has just noticed for the first time that there is a cavity there. It is a very common case, and the conditions are as favorable as we usually find for making a good durable operation, which should preserve that surface of the tooth from any further trouble for ten years or more. But the usual treatment falls far short of that result. About three years is the average length of life of the usual gold filling inserted in such a cavity. Let us see how this short-lived filling is put in. With little or no separation, the tooth is cut away on the labial surface about this way (indicating) enough to allow insertion of the gold easily. The thin edges of the cavity are trimmed away slightly, and the lingual wall left standing entire, so the gold may be packed against it easily. The grooves or undercuts for retaining are made where they can be made most easily, and when filled the filling looks fairly well, and may be well polished and smoothed down. But in about three years or less, we find that the tooth re-decays around the filling, and if it has stood long enough the whole lingual wall breaks down like this (indicating.) There's something wrong with this. It ought to be possible to preserve this tooth longer than three years, and it is possible I will point out the cause of failure and remedy for it after I consider another form of treatment which is sometimes given to this case, to avoid showing the filling, the tooth is cut away from the lingual side like this (indicating) and the gold inserted from the back. My observation of these cases is that they are worse failures that the first shown. They not only fail to preserve the tooth long, but the gold will show through beneath the enamel in a little while, giving a dirty color to the tooth that makes it look as though the cavity was not filled at all. The inaccessibility of this cavity is against its success. It is hard to fill such a cavity at all, and impossible to give the proper treatment to the entire surface as I shall soon show. There are various modifications of these two forms of treatment, some of which are steps in the right direction, but they are rather short steps. It is not whether soft or cohesive gold is used that these cases fail. It is not that the filling is perfectly or imperfectly polished; it is not whether the teeth are separated or not; it is not whether the plugger chipped the edges of the cavity or never touched them that they fail; it is not whether the retaining grooves were made right or not, nor whether the gold was perfectly condensed that they didn't last. The great fault above all other faults, and greater than all the others put together, is that the cavities were not made the right shape, where not extended over the surface of the tooth to gain certain important points which determine whether or not the filling will last. If the cavity is only extended properly so that the junction line between gold and enamel comes *in the proper place* the work will stand, even if the operations of preparing the undercuts, packing the gold and finishing the filling be very indifferently done. I have seen this over and over again, especially in my college work during the last three years, and I find it true in *every instance* that when the junction line between filling and tooth substance is extended properly, the filling lasts well, if the work is even passably well prepared and finished, but where it does not extend properly, the filling falls much short of its appointed time, no matter who the operator nor what his method of preparation or finishing.

I wish to remark "on the side" that college work is about as good an instructor as a man can have. In a college a man finds every kind of work from everywhere, good bad and indifferent, and he soon loses his veneration for men and increases his respect for methods. He sees more variety and a greater quantity of work in one year in a dental infirmary than he will see in five years in an office, if it be a college of any size; and when he can look at a piece of work and there be no dollars and cents connected with it one way or the other, he forms a better judgment of the real worth of the work. But to return to our subject, where upon the surface of this tooth is this "proper place" where we are to extend the boundaries of this cavity? Briefly, extend the filling both front and back till the junction line of the filling will be constantly kept clean by the action of the lips or tongue, and keep this line far enough away from the point of contact with the opposite tooth that food will not be lodged along this line of union and so be held to ferment and form acids, bacteria, bugs—whatever causes decay—take your choice as to the cause. This extension for prevention has been so ably treated by Dr. G. V. Black in recent articles in the Journals that I cannot add to it, but would say, if you havn't read these articles carefully, go home and do so, and then practice what he preaches. The entire surface of the tooth should be remodeled, and indestructible gold left for the opposing tooth to rest against instead of frail tooth substance. I have heard arguments used against such extensive cutting by men who are supposed to be eminent in the profession. It was said "the Creator did not make teeth to be cut away by meddlesome dentists." If the Creator attends to teeth with such minuteness, why does he allow them to decay at all? If they *will* decay, we must remedy the trouble. If nature does not give indestructible surfaces to the teeth, we should remodel them and make these surfaces right if they need it. A tooth need not be rendered unsightly, and still have the whole proximal surface remodeled, if it is properly separated.

Separation is absolutely necessary in most cases for a perfect result, to allow the introduction and proper working of the gold. Now, a few words about the preparation of the cavity for the retention of this filling. Too often deep grooves or undercuts are made in weak places, notably on the lingual side, which so weaken the walls of the cavity that they break down and the work fails long before its time. It is possible to dovetail a filling in place with the dovetail nearly all on one side. The lingual wall is nearly always weak, the labial wall quite strong. We can make most of the undercut on the labial side, and yet when the filling is done it will be impossible to remove it without breaking away part of the tooth. This requires a very elaborate drawing to show this point well, and I am afraid I do not make my point clear by these diagrams. At the cervical border the mistake is often made of making a deep groove. This is nice to pack gold into, but dangerous on account of the liability of fracture in filling, especially if a foot plugger be put upon the outside to condense overlapping gold and there *always* should be overlapping gold there.

Dr. MARTINDALE: Do you prepare the cavity the same way for both cohesive and noncohesive gold?

Dr. BRADY: I prepare these cavities all the same way, for I use only one kind of gold in this class of cavities.

Dr REID: What kind of gold would you fill that cavity with?

Dr. BRADY: I use soft gold, which by annealing becomes cohesive to any degree wanted. I do not believe in too much annealing, as it hardens the gold while it renders it cohesive. I think semi-cohesive is about the grade I advance it to ordinarily. I believe in as little annealing as really necessary, and thorough malleting rather than extra cohesive gold.

I make much use of the burnisher in finishing fillings, and neither too soft nor too hard gold will burnish well to the walls of the cavity. Dr. John J. R. Patrick has written and said much upon the use of the burnisher, and I wish his words were read and followed by more dentists.

In regard to instruments I believe there is no certain set that are just the thing. Every man learns to use certain instruments which are most convenient for himself. But I would call attention to one thing; a gold packing instrument of any kind should be of such shape that we can find some place upon it which will allow it to be closely adapted to the edge or walls of the cavity where it is used. A round plugger will not fit a square hole; a foot-shaped instrument will reach more places than any other; grooves, undercuts, along straight walls and along curved ones, in the body of a filling and over the edge.

In conclusion I would sum up the essential points of proper treatment of proximate surfaces. First, separation, by fair means or foul, fair means preferred, but separation to begin with. Next a thorough extension of the cavity, both front and back, till the junction line of the gold is capable of being cleansed by each movement of the lips and tongue. This extension requires to be carried further on the lingual than on the labial surface, that the filling may replace to a considerable extent the ridge upon the lingual surface, and not leave a thin feather-edge of gold joining a thin feather-edge of enamel. This point is very important, and the most neglected, I am sorry to say, so I would lay particular emphasis upon it. The gold must be well extended upon the lingual surface, or the filling fails of its perfect work just in proportion as the filling fails to extend as indicated.

Third, the cervical border be extended till it is either beneath the gum or not quite beneath it—beneath it preferred; but not in any event just along the gum line so that food lodged there will remain right along this border of the cavity. Fourth, the undercuts be made such as to weaken the tooth as little as possible, depending on the retaining shape of the whole cavity rather than on any particular groove or retaining pit. Fifth, a thorough condensation of the gold, overlapping all walls with gold. Last, and second in importance, the thorough finishing of the filling, using the burnisher on all borders of the filling, properly smoothing and polishing the filling by fine sandpaper disks or strips. Coarse sandpaper should not be used as it roughens the tooth. It would be all right if the tooth was polished again, removing all the scratches, but nobody ever does that. But burnishing the edges and polishing the surface is not finishing a filling by a long ways. The filling must be carefully shaped to give the form of an ideal tooth, correcting and improving the contact with the next tooth, and making this contact what it ought to be, not whatever it happens to be. If there has been much breaking down of a proximate surface, the interproximate space has become lessened and the interproximate tissue has been crowded out of existence. Again I call your attention to Dr. Black's writings and commend the careful study of his paper on the interproximate spaces. If this space has been lost, the filling must be so shaped as to restore it. The point of contact should be made as small as possible, and near the cutting edge, leaving all the space possible at the neck of the tooth. We can improve almost every tooth we operate upon if we will only do it. The rule should not be to make it good nor as it was, but better than it was. I do hope that these points I have brought out to-night will be better observed in the future. It is discouraging to a man to see so much poor work. He feels that he cannot put the amount of work necessary upon a tooth when others do not do the same. What I have talked about to-night is not really hard to do if men will just make up their minds to do the work, and then *do it.* It is observance of these principles that saves teeth, not new fangled appliances, electric buzz-wheels, pneumatic blowouts, expensive forms of gold under high sounding names, or any of the thousand and one things to sell. Good work can be done with ordinary appliances if the operator has honesty with ordinary brains. Nothing but good, honest hard work will accomplish the required result, and if the operator does this he will have the comfort and satisfaction of a clear conscience along with his share of the coin of the realm. With my apologies for the incompleteness of my treatment of this subject, and the hope that I may be able to give you an elaborate and carefully illustrated review of it soon through the columns of the journal, I thank you for your kind attention.

Owing to the lateness of the hour Dr. Brady's paper did not evoke the discussion which it deserved.

At the close of a short discussion, a motion was made to adjourn until Friday morning.

Motion seconded and carried.

The Society then adjourned.

AFTERNOON SESSION, FRIDAY, JULY 15, 1892.

The meeting was called to order by President Merrill at 2 P. M., after which the minutes of the last meeting were read by the Secretary and approved.

Dr. REID: I think that most of us here are aware that Dr. Martindale has abandoned the active practice of our profession, and as he is square upon the books of the society, I would move that he be made an honorary member of this society.

Motion seconded.

Dr. Reid's motion was carried by a unanimous rising vote.

Dr. C. W. Jones, of St. Paul, then submitted his essay on "Preparation for, and Adjustment of Collar Crowns." See page 25.

President Merrill: Dr. Jones' paper is now open for discussion.

Dr. Angle: The subject is an interesting one, and a good many points were brought out by the doctor. I have seen the instrument the doctor has shown here, and although I have not had the opportunity of experimenting with it, it seems to me that it is constructed upon a very good principle, and should be very useful, providing it is made strong enough. The great objection to its use, it seems to me, is that the hard enamel will dull it, yet that may be overcome by its being properly made. There is one point I wish to speak of, and that is the principle of banding the roots for crowning. I think it is something that is very greatly overdone, as practiced by dentists to-day. Of course it becomes necessary in the molars and bicuspids, and I do not know that what I say should hold good in those, only so far as making the band pass beneath the margin of the gum to the extent that many dentists do. I think that is unnecessary and very injurious. It is altogether unnecessary to band them only a slight distance beneath the gum. The principle of banding the roots for the central and lateral incisors and the cuspids is, in my opinion, decidedly injurious, in a majority of cases, producing an effect which is far worse than if it was left off. If you ask a dentist why he does it, he tells you in order to strengthen that root and prevent it from splitting. Now roots rarely split, and if they do it is usually the result of a fall or blow that will split an unsound tooth anyway. The practice of putting a piece of pure gold upon the root to strengthen it is a mechanical principle that is very weak indeed. The amount of straining that the band would endure, as usually put around there, would be almost nil. As a protection for the margin, the line between the crown and the root, I say it is unnecessary. It is well known that the line of decay is above the gingival line of the gum. Below that decay rarely takes place, and if we put our crowns on as we should, the chances of decay are very small indeed. If it is fitted properly, done with proper care, we can make a crown that will stand and resist all the mechanical forces brought to bear against it, avoiding that unsightly appearance of gold right next to the margin. I do not care how beautiful you make that band, or how carefully you burnish it, it is unsightly, and the appearance of the gum is never perfectly normal. Now, as a proof of this, I will say that I have seen Bonwill crowns that have been on for years, that have lasted for years and years, and when broken away through accident, have seen the imprint of the stone that was used in grinding them down, and yet not the least sign of decay. I have used, with the most satisfactory results, the low crown for these teeth. I am not advocating that crown for any financial consideration, but because I think it is one of the most beautiful and perfect principles of crowning incisors that I have ever seen, and I think it is one that will last and come the nearest to being the ideal crown. I have had a number of them on for a long time, and I have taken the trouble to remove two or three and examine to see what the result would be. I have not seen the least sign of decay, or have I ever seen the roots split, if the crown was put on properly, or have any accident of that kind. I am inclined to think that a band around these incisors is wrong in principle. I notice also in certain articles in the Journal that the tendency is to oppose that method, and I am glad to see it. I am glad to see that there is less tendency to have that band around the front so conspicuous. I think it is unnecessary.

Dr. Brown: I was unfortunate in not hearing the paper, but I have heard what Dr. Angle has just said, and I think this idea of putting the band around the teeth cannot be too strongly emphasized. If, as Dr. Angle has said, a band around the incisor teeth is a bad thing, it must be a bad thing around the other teeth too. The question is whether we can do away with it or not. I think, as Dr. Angle said, that the consensus of opinion in the profession shows that the dentists at large have become satisfied that the band around the teeth is frequently injurious. The perfect crown must be a crown that has no band. Of course, when we take away the band we take away a good deal of strength, in so far as keeping the teeth in place is concerned. That is the necessity of the band, and when you take away the band, you must replace it with something that will supply that strength. The reason that I have taken so much trouble in using inlays, and put off crowning as much as possible, is simply because when I crown I am obliged at present to use a band. Now, as a sort of compromise I have been using gutta-percha, and as I said yesterday, the gutta-percha reduces to a considerable extent the disadvantage of using a band, because I am not obliged to have my band come up so far under the gum as when I use cement. I am satisfied that my gutta-percha will not disintegrate and leave a little space that will help to produce irritation.

Dr. Martindale: I would like to suggest an idea which I suspect is old to all of you, but which does away with the band in front. It is not my own idea, I got it from some one else, I don't know who. I became convinced some time ago of the fact that there was no need of having those bands in front, and that we could get along without them (draws diagram). Now, as we know, this represents an incisor tooth. When it is decayed away or broken off this lingual border is very prone to decay extending up in this direction (indicating). You have there usually quite a little edge which is usually stronger at this part than back of the tooth. I endeavor to leave as much of that as I can, and I do not care so much as some dentists do about reducing it to a bevel either. I cut it off something like this (indicating). Of course this is such an old practice that some of you may laugh at it, but it seems practical in my opinion. Then I swage a little plate in that fits down over that (indicating) of pretty soft gold—almost pure gold —and fix it as I want it in there and solder it. Then I lift this cap off and while the cap is off I use a bur that is made very dull so that it will leave a very smooth concave, cutting down the edge of the gum like that (indicating). So that my root—this being the labial and this the lingual surface—presents an aspect underneath the gum something like this I have drawn, and cut away afterward. Then I take and set my cap on and simply take and burnish down into that hole so it is up underneath the gum there. I then take my tooth, which has already had a back placed on it, and set it down in there with the pins, so that the tooth sets down underneath the gum, and solder it up. In that way I am getting a band that holds on the side back of the front of the tooth, but I am not getting a band that will show on the front I am getting a good tight union of the gold below the point that Dr. Angle speaks of.

Dr. Jones: What would you do with the bicuspids and molars.

Dr. Martindale: I have never done that back of the cuspids.

Dr. Jones: There are cases where they will not stand and cases where the cement will dissolve at the joint, and the root will decay and be destroyed afterward.

Dr. Martindale: I do not think the cement will dissolve in that because I swage it down. It is only a cap on the lingual border, and a crown on this portion that runs up here (indicating).

Dr. Jones: What would you do in a case where the tooth looked as well in every respect as the one I spoke of but was very unsightly?

Dr. Martindale: I think everything considered it would be better to remove it, unless it could be bleached out.

Subject passed.

Dr. Brimmer: Dr. Goodrich was unable to give his clinic this forenoon, and I move that he be allowed to present it at this time before the society. He may have some points that he would like to illustrate, and I think he should be given a short time for that purpose.

Motion seconded and carried.

Dr. Goodrich: I have but a few words to say. (Draws diagram.) In preparing the roots for the crown, I always cut away the roots of the teeth well up under the crown so that when my crown is on, it is put on further than Dr. Martindale has illustrated here. I first cut the tooth off and cut it down from above the crown, and then I prepare the root, cutting it just a little larger than the pin. Then I commence to fit the tip to the root, and I fit one against the other, so to speak, and when I finally get it upon the gum—I have the tooth ground this way, almost flat (indicating)—the tooth sets snug up against the end of the root, further on the gum in front than on the rear. I set the front teeth principally with cement; in fact, I use cement all the time, and the bicuspids I prepare with either gutta-percha or amalgam, principally using amalgam, and I never have very much trouble with their coming off. I was glad to hear what was said in regard to a band around the roots of the teeth, because it agrees perfectly with my own experience. When I set a tooth I have some litmus paper which I use to keep it dry, and I dry the gum thoroughly, putting in a little oil of eucalyptus in the root to make it a little oily, and then I dry the gum with litmus paper and hot air; I then dust a little powder on the gum, and the natural moisture of the gum will mix with it, making quite a little cement, and keeping the root from becoming contaminated in any way. I then place some of the material on the end of the tooth and fill it, and press it home, if necessary tapping it with a mallet. I hold it there ten or fifteen minutes or so, until it is all right to dismiss the patient.

Dr. Brown: I think there are one or two serious objections to some of the points Dr. Goodrich has stated. He says he cuts that off above the gum. In that case he must lacerate that gum, and if he does so, there must be exudation there. It seems to me it must be very difficult in that case to keep that gum dry long enough to admit of the proper setting of the cement or amalgam.

The second consideration is this: I do not believe we are warranted in taking away anything from the tooth which we cannot replace by something just as good and better. When you grind off the root to that extent, you take away a considerable portion of what should be depended upon to give strength to your crown. In the front teeth the application of force is chiefly from within outward. I believe in leaving the support there as much as possible. I always grind on the outside and leave that inner portion just as much as I can when I fit a crown. I keep that as a resistance against the action of the lower tooth. Now in crowning, by cutting away that part of the tooth, we leave it weak to that extent, and I think the principle is wrong. Now so far as putting a crown on there without having a band, that principle is all right because you have a cap there that fits and it takes the place to a large extent, of the band. Now cement will not stand on an unprotected edge. If that is down below the gum you see it and know it will not, and putting it down out of sight does not help it; the principle is the same in both cases. It takes a long time for the cement to disintegrate, but it is bound to do so, and long before your crown comes off, or even shows a weakness, there is a line there which offers a lodging place for bacteria and all the other conditions we have spoken of. I feel very much as Dr. Dickinson suggested to me a moment ago, and that is that there is too much crowning done.

Dr. Brimmer: My experience has been that if a dentist does not want to lacerate the gums he need not do so, and I am somewhat surprised to see a dentist of Dr. Brown's standing advance that idea. If you properly dress off your root and make it funnel-shaped, packing in Hill's stopping, it will stand a year. If you treat your tooth that way and let it go a couple of days it will be all right.

Dr. BROWN: I always do that myself, but Dr. Goodrich explained that he ground that tooth off above the edge of the gum. I think it is impossible to do that without lacerating the gum. How are you going to grind the gum without lacerating it?

Dr. BRIMMER: By simply pushing the gum up out of the way.

Dr. BROWN: But how will you grind the gum or the edge of the tooth as much as Dr. Goodrich has indicated there, without laceration?

Dr. BRIMMER: You can grind your tooth to the edge of the gum and then press the gum back a little further and continue the operation.

Dr. BROWN: In case you do that it will take two or three operations, and I am satisfied that no one here will take two or three sittings to do that work.

Dr. GOODRICH: Dr. Brown must remember that those drawings are not to be looked at with a microscope. What I tried to do is to get my connection between the root and the crown below the edge of the gum. I am not very much of an artist, I will admit, and may have drawn that line further above the gum than I intended to. I have put on a number of Logan crowns with very good success, and I think I can put one on without lacerating the gum, and do it in one sitting.

Dr. BROWN: If you want to put on a crown of that kind I will make one suggestion. When I have to use a crown of that sort I make it in this way: I fit a pin in the root and take a piece of platinum and burnish it as well as possible, taking a tooth and baking an Allen body on the back of it, and I find I have something that works very nicely. I put that in place with gutta-percha. I am always afraid of the splitting of that root. If I were not afraid of the splitting, why even then I would make a crown in that way rather than take a crown that is already made and attempt to grind something made on another model, perhaps, to fit that root.

Subject passed.

After the election of officers and transaction of other matters of business the society adjourned.

CLINIQUE ST. LOUIS DENTAL SOCIETY.

MARCH 15, 16, 17, 1893.

Morning Session, First Day.

Meeting opened at 10 A. M. by address of welcome by Dr. DeCourcey Lindsley on behalf of St. Louis Dental Society, and by Dr. W. H. Eames on behalf of the Missouri Dental College in whose building the clinics were held.

CLINICS.

Dr. L. A. Young, St. Louis, Mo.: Inserted gold filling in distal surface of inferior second bicuspid right side, tin at cervical border. Force used hand pressure.

Dr. J. B. Newby, St. Louis, Mo.: Inserted gold filling in distal surface right inferior second bicuspid using matrix, and soft foil cylinders at cervical border.

Dr. J. G. Hollingsworth, Kansas City: Demonstrated the application of his set of dies for crown and bridge work.

EXHIBITS.

Dr. H. R. Nieper, Hannibal, Mo.: Exhibited device for holding rubber dam smoothly in position.

L. J. Mason: Exhibited the Harris Pneumatic Plugger.

St. Louis Dental Mfg. Co.: Exhibited the Atwood motor and engine for alterating current.

Dr. J. G. Hollingsworth: Dies for crown and bridge work.

Detroit Mfg. Co., Detroit: Improved porcelain gas furnace and low-fusing body.

Ritter Dental Mfg. Co., Rochester, N. Y.: Columbia dental chair, dental cabinet, operating table.

Dr. C. J. Tibbets, Quincy, Ill.: Electrical apparatus using current.

Afternoon Session, March 15, 1893.

Dr. J. G. Harper, St. Louis, Mo.: Demonstrated use of physic's forceps by extracting lower second molar.

Dr. J. G. Pfaff, St. Louis: Inserted gold filling in mesial surface superior right cuspid, using cohesive gold and hand mallet.

Dr. W. M. Carter, Sedalia, Mo.: Demonstrated the use of cement in starting a gold filling in the mesial surface of superior right central incisor, corner gone.

Dr. J. C. Goodrich, Wentzville, Mo.: Gold filling in mesial surface of superior, left central incisor, using a narrow strip of rubber dam around opposite tooth and filling to prevent adhesion of filling upon which he was operating.

Dr. P. H. Morrison, St. Louis, Mo.: Gold filling in mesial surface, superior, left cuspid using four retaining points for anchorage. Finish with platinized gold.

Dr. F. F. Fletcher, St. Louis: Gold fillings in distal surface, superior left cuspid and mesial surface, superior left bicuspid, using cohesive gold and pneumatic mallet.

Dr. A. J. Prosser, St. Louis,: Gold filling in distal surface inferior second molar, using matrix, soft gold cylinders permitting moisture in cavity. Finished with No. 60 cohesive gold.

Dr. J. J. R. Patrick, Belleville, Ill.: Porcelain faced lateral incisor crown with gold band, illustrating his method of preparing root, fitting band and of making joint between porcelain and gold at cervix.

Dr. P. F. Helmuth, St. Louis: Gold filling in mesial surface, superior left lateral incisor, using platinized gold and Palmer pneumatic plugger and automatic mallet.

Dr. C. R. Taylor, Streator, Ill., presented dental anomaly three fused deciduous inferior incisors and molar tooth taken from testicle of a horse.

Dr. C. S. Case, Chicago, illustrated method of constructing artificial vela for cleft palates.

Morning Session, Thursday, March 16th.

Dr. G. A. Bowman, St. Louis: Root-filling with gutta-percha by ordinary method, inferior right second bicuspid.

Dr. Geo. Robitoy, St. Louis: Extracted left inferior third molar. Condition, Pulp putrescent with pericementitis; filled roots and replanted tooth.

Dr. I. A. Freeman, Chicago: Gold filling. Inferior left second bicuspid distal surface without matrix, using cohesive gold and pluggers of his own design.

Dr. Wm. N. Morrison, St. Louis: Planted superior left central incisor, retaining portion of alveolar process on implanted tooth. Immediately following extraction of decayed root.

Dr. J. W. Wick, St. Louis: Gold filling, using gold cylinders and hand mallet. Superior left central incisor, building down corner.

Dr. G. A. McMillen, Alton, Ill: Expulsion of pulps by concussion. Superior left lateral incisor and superior left central incisor.

Dr. C. S. Case, Chicago., exhibited casts of faces, models of irregularities and apparatus for protrusion and retraction of jaws, upper and lower.

Dr. J. B. Vernon, St. Louis: Bridge on lower jaw, right side extending from first bicuspid to second molar, without porcelain, hollow gold caps for missing teeth.

Dr. W. B. Ames, Chicago: Demonstrated the preparation of his crystalline cement for fillings and for crown and bridge work.

Dr. W. J. Brady, St. Louis: Demonstrated the application of Angle's system of regulating.

Afternoon Session, Thursday, March 16th.

Dr. T. M. Nicholson, Fayette, Mo.: Gold crown on inferior right first bicuspid root.

Dr. B. Q. Stevens, Hannibal, Mo.: Demonstrated painless extraction of pulp, superior left lateral incisor, using crystals of cocaine hyrochlorate.

Dr. E. B. Crane, California, Mo.: Exhibited vulcanizer and demonstrated the method of overcoming shrinkage of rubber, and of making a denser plate.

Dr. H. H. Keith, St. Louis, Mo.: Demonstrated porcelain crown and small bridge work, using Detroit gas furnace and low fusing body.

Dr. C. L. Hungerford, Kansas City: Constructed bridge from cuspid to second bicuspid left side, using open faced crowns for attachment and porcelain for missing tooth.

Dr. J. G. Hollingsworth, Kansas City: Constructed bicuspid gold crown for left superior, first bicuspid root, demonstrating use of his dies.

Dr. Garrett Newkirk, Chicago: Constructed bridge, using tubular post and plate set in lingual surface of right cuspid to support lateral incisor.

Dr. C. J. Tibbets, Quincy, Ill.: Gold filling morsal surface superior left central incisor, using platinized gold. Bonwill mallet driven by his electric suspension engine.

Dr. Carl T. Gramm, Keokuk, Ia., and Dr. Henry Fisher, St. Louis, exhibited electrical converter electric mouth lamp, cautery and root canal instrument for filling root canals with wax or paraffine.

Dr. Carl T. Gramm, Keokuk: Filled root superior right second bicuspid, using electrical apparatus for drying and for carrying root filling to apex.

Dr. J. Campbell, Bloomington, Ill.: Gold filling in superior left lateral incisor mesial surface, using pneumatic mallet.

Dr. A. W. Harlan, Chicago: Operation for pyorrhœa alveolaris, using trichloracetic acid on account of its medicinal qualities.

Emerson Electric Manufacturing Co., St. Louis, exhibited improved Meston motor with automatic brake, cutting off circuit when brake is on. Current alternating.

Morning Session, Friday, March 17th,

Dr. A. E. Matteson, Chicago, demonstrated his method of making porcelain inlays by means of the English Close and Wilmington bodies.

Dr. G. V. Black, Jacksonville, presented set of pluggers with angles adapted to service with Perry separator on incisor teeth—the angles so constructed that incisive retaining points and lingual borders can be easily reached. Also the use of gutta-percha and eucalyptus placed in bow of Perry separator to prevent slipping into gums.

Dr. K. B. Davis, Springfield, Ill.: Tin and gold filling inferior right second bicuspid distal surface, using Harris' pneumatic mallet, and matrix restoring interdental space.

Dr. B. Q. Stevens, Hannibal: Painless extraction of pulp, using crystals of hydrochlorate of cocaine, tooth superior right second bicuspid.

Dr. R. H. Mace, Belleville, Ill., exhibited upper and lower gold plates, made 80 years ago, in which artificial incisor teeth and natural molar teeth were used. Retention in mouth by means of spiral springs attached to both plates. Exhibited models of bases of irregularity.

Dr. J. W. Cormany, Mt. Carroll, Ill.: Gold filling, superior right central incisor, building down corner and using Bonwill mechanical mallet.

Dr. J. W. Wick, St. Louis, Mo.: Gold fillings, using Rowan's cylinders and German silver matrix, band surrounding tooth. Superior right first bicuspid distal surface, and superior right second bicuspid mesial surface.

Dr. A. D. Penney, Chester, Ill.: Gold filling in mesial surface, superior right central incisor, using crystal mat gold, hand pressure and finishing files for pluggers. Meston motor.

Dr. Emma E. Chase, St. Louis, exhibited models of interesting case of irregularity with appliances used; patient with case completed. Result good. Also model of anomaly of temporary supernumerary lateral incisors.

Afternoon Session, March 17th.

Dr. W. A. Stevens, Chicago: Gold filling. Superior right lateral mesial surface, building down corner and using Watt's crystal gold.

Dr. J. G. Harper, St. Louis: Demonstrated uses and application lintine, a new antiseptic cloth.

Dr. H. M. Baird, St. Louis, Mo.: Porcelain-faced band and pin crown of superior lateral incisor root.

Dr. D. J. McMillen, Kansas City: Baked upper plate of continuous gum.

Dr. C. L. Hungerford, Kansas City: Exhibited molar crowns in his own mouth with gold bands, porcelain crowns and buccal surfaces. Constructed from countersunk teeth.

Dr. F. F. Fletcher, St. Louis: Exhibited bridge in place constructed by attaching two central incisor faces to porcelain faced lateral incisor crowns.

Dr. Carl T. Gramm, Keokuk: Demonstrated filling of roots with wax, using electric root canal dryer.

Dr. E. H. Allen, Freeport, Ill.: Gold filling. Distal surface superior right second molar, using Ney's soft foil for cervical border, finishing with cohesive gold. Hewitt matrix.

Dr. J. E. Grosheider, St. Louis: Constructed bridge for left side upper jaw extending from first bicuspid to second molar. Porcelain facings for bicuspids and porcelain face, for supporting bicuspid crown set with cement.

Dr. J. J. Reed, Chenute, Kansas: Illustrated method of sharpening burs.

Dr. H. S. Lowry, Kansas City: Demonstrated method of contouring crowns by which natural contour of teeth in crown work was attained.

Dr. W. O. Kulp, Davenport, Iowa: Art Technic. Changing expression of cuspid teeth by grinding.

At 4:30 P. M. meeting adjourned to lecture room, where Dr. J. S. Letord read a short paper entitled "Chloro-percha as a Dressing for Wounds in the Mouth."

Dr. W. H. Eames exhibited sets of teeth showing improvement of anterior rim as applied to incisive fossæ and causing eminences.

Dr. J. D. Patterson, Kansas City, asked that Secretary of the General Executive Committee of World's Dental Congress be asked to address society.

Dr. A. O. Hunt addressed the meeting on the work of the congress, and work accomplished. Reports over 900 appointments in this and other countries. Hoped to have in the report of the congress whole of history of dentistry from its beginning. Suggested early subscriptions.

Dr. A. W. Harlan, Secretary General, spoke on the congress work.

Dr. C. R. Taylor then proposed a vote of thanks to the St. Louis Dental Society for their courtesy, etc., after which the clinic was adjourned.

Banquet given by St. Louis Dental Society to clinicians at Tony Faust's March 16th, 1893.

1.	Welcome,	Dr. De Courcey Lindsley.
2.	Our Guests,	Dr. W. N. Morrison.
3.	Dental Colleges,	Dr. J. D. Patterson.
4.	The American Dentist Abroad and the Worlds' Columbian Dental Congress,	Dr. A. W. Harlan.
5.	The Dental Profession,	Dr. H. S. Lowry.
6.	Good Fellowship,	Dr. G. V. Black.
7.	Dental Appliances,	Dr. W. H. Taggart.
8.	Dental Journalism,	Dr. Louis Ottofy.
9.	Recreation,	Dr. Darby.
10.	Our Friend Electricity,	Dr. C. J. Tibbets.
11.	Miscellaneous Remarks,	Dr. Garrett Newkirk.
12.	"	Dr. A. W. McCandless.
13.	"	Dr. C. L. Hungerford.
14.	"	Dr. G. A. Bowman.
15.	"	Dr. A. E. Matteson.

THE DENTAL REVIEW.

Devoted to the Advancement of Dental Science.

PUBLISHED MONTHLY.

EDITOR: A. W. HARLAN, M. D., D. D. S.

ASSOCIATE EDITORS:

C. N. JOHNSON, L. D. S., D. D. S. T. L. GILMER, M. D., D. D. S.

DENTAL NOMENCLATURE.

In the February REVIEW attention was called to the chaotic condition of dental nomenclature, and a suggestion was made that the subject be studied in order that the report to be presented by the committee on dental nomenclature to the International Congress may be more intelligently discussed.

We wish to extend the consideration of the subject and specialize by calling the attention of the profession to one phase of the subject, and if possible stimulate thought and expression in that direction.

A question which may profitably be put at this time is, Should dental nomenclature be based upon the Latin? The query is not new, but is one that has never been positively answered by any authoritative body of dentists so far as the writer is informed, and it certainly is desirable that the congress should discuss it, not in a perfunctory manner, but as of first importance, and send out a pronunciamento that may be accepted as final.

A peculiar condition exists in dentistry relative to its nomenclature. The nomenclature of general anatomy, chemistry, pathology, etc., etc., each based upon the Latin, or Latin and Greek. These are as much a part of dentistry as is operative or prosthetic dentistry; nevertheless the nomenclature of the latter is principally formulated from our vernacular. Is it consistent to use the Latin basis in those branches borrowed from general medicine, and the vernacular in all others? The nomenclature of the older books pertaining to dentistry was based upon the Latin. This is accounted for by the fact that the writers were medically educated, and taught dentistry as a branch of general medicine. When a break with medicine took place, and separate schools and writings became more common, a new order of things came about, and the schools and writers used the vernacular in order to adapt their work to those seeking admission into the new profession, among whom were many unfamiliar with the Latin.

Another question may be asked: Can we, the youngest of the professions, if we are a distinct profession, afford to do that which all other older allied professions have not found it advisable to do? It may reasonably be feared by some, that a course so different from other scientific bodies may have a tendency to prevent dentistry from drawing to itself its share of the better educated men who seek professional life. We have invited men of various nationalities, French, German and others, to meet with us to aid in the formation of a nomenclature. Can we consistently ask them to aid us in the formation of a nomenclature based upon the English language. It would hardly seem so. The aim in inviting these gentlemen of different tongues to places on this committee, one would naturally suppose, is to aid in forming an universal nomenclature. In order to do this it must be based upon the Latin or Latin and Greek, otherwise we have no need of other than English speaking people to aid in the work.

T. L. G.

Root Filling.

On page 233 of the *Dental Cosmos*, March, 1893, Dr. E. S. Talbot says: "After that, some one thought of the scheme of filling roots with chloroform and gutta-percha, the most nonsensical thing ever used in treating root canals, according to my notion, yet the largest percentage of dentists use that mode of filling roots today. There is nothing in the chloroform or gutta-percha that will produce an antiseptic condition or destroy the albumin in the pulp canal, and so it is a purely mechanical mode of filling the root. For twenty years I have noticed this mode of filling in patients that have come under my care; I have frequently removed these fillings, and invariably within six months could smell the sulphureted hydrogen upon that material. You can't do that with oxychloride of zinc. It is not possible for the reason that the chloride of zinc has destroyed the material to such an extent that putrefaction cannot take place'' Let us examine this "nonsensical thing'', chloroform in the proportion of 1 to 103 prevents the development of bacteria. When it is used in full strength, what chance would an organism have in the root of a tooth? Gutta-percha is not an antiseptic unless oxide of zinc is incorporated with it. When any one "smells sulphureted hydrogen upon that material'' the root has not been properly treated, disinfected and dried before its introduction.

There are no experiments in any work on bacteriology that will show oxychloride of zinc to be a destroyer of albumin nor even chloride of zinc in the strength in which it is used as a component of an oxychloride filling. Albumin is not destroyed by chloride of zinc unless used in a deliquesced state, full strength. Albumin does not produce putrefaction nor generate putrefactive agents, a ten per cent solution of chloride of zinc in the root of a tooth will not destroy the spores of the staphyloccus pyogenes aureus. Any one not wedded to such an unscientific mode of filling roots as to use oxychloride of zinc, knows that after the removal of the pulp, and the securing of dryness of the root, the moistening of its interior with eucalyptol or cajuput and the subsequent introduction of "the most nonsensical thing ever used in treating (filling) root canals'' will not afterward "smell the sulphureted hydrogen upon that material.'' Such remarks in dental societies by men who should know better, is why scientific dentistry has to suffer, when there are those who actually believe that gutta-percha is a smell producer in the roots of teeth. The work in bacteriology by Miller, Andrews, Black, Mummery, Sudduth and numerous other authorities has to run such a gauntlet from time to time in order to more firmly fix correct knowledge in the minds of the masses. As to the method proposed by Dr. Gramm we think it has promise of great usefulness, but in the language of the above author "it is a fairly mechanical mode of filling the root,'' and on that account we think it possesses merit. No medicated root filling if you please, the medication first, then "mechanical'' root filling is what will most surely prove successful, "that is what the largest percentage of dentists use * * * to-day.''

DENTAL COLLEGE COMMENCEMENTS.

CHICAGO COLLEGE OF DENTAL SURGERY—DENTAL DEPARTMENT OF THE LAKE FOREST UNIVERSITY.

The Eleventh Annual Commencement Exercises of the Chicago College of Dental Surgery were held at the Columbia Theater, Tuesday, March 28, 1893.

The Doctorate address was delivered by Louis Ottofy, D. D. S.

Class Valedictory by T. Elhanan Powell, D. D. S. The degree of Doctor of Dental Surgery was conferred by Truman W. Brophy, M. D., D. D. S., Dean, upon the following named (26) graduates:

Robert Finley Buchanan, Illinois.
Frank Firestone Barnes, Wisconsin.
Frank Courtney Briggs, Canada.
Samuel George Clemence, Canada.
William Crosbie Davis, Canada.
Alva Curtis Davis, Illinois.
Hugo Franz, Germany.
William Oliver Houser, Illinois.
Elmer Ellsworth Kirkpatrick, Kansas.
Albert Elwin Morey, Ph. B., Illinois.
Delbert Boyden Muzzy, Illinois.
Ernest Anderson Mason, Nebraska.
Park William McElwain, Iowa.
John Wesley Martin, Illinois.
Washington Joe Oakey, Wisconsin.
T. Elhanan Powell, Illinois.
Robert Sanford Perkins, Illinois.
Edward John Rohrer, Illinois.
Isaac Schoenbrod, Russia.
John Franklin Snyder, Minnesota.
Harald Andrew Scott, Wisconsin.
Louis Wily Sinclair, Illinois.
Albert Edward Webster, Canada.
Frederick Muir Wales, Illinois.
Kent Turvill Wood, Wisconsin.
Arthur Fletcher Selleck, Illinois.

AMERICAN COLLEGE OF DENTAL SURGERY.

The seventh annual commencement exercises of the American College of Dental Surgery were held in the Grand Opera House, Chicago, March 21, 1893. Doctorate Address by Rev. O. R. Gifford; Conferring of Degress and Awarding of Prizes by John S. Marshall, M. D., Dean; Valedictory by George T. Banzet, D. D. S. The Degree of Doctor of Dental Surgery was conferred upon the following named (28) graduates:

Frederick E. Pilcher,
Adolphus E. McKenzie,
M. Antoine Sayler,
John T. Murray,
Charles H. Foster,
Karl W. Woodward,
Henry C Miller,
William B. Pearson,
Bert Cole Delano,
E. Lee Carter,
Captain H. McComb,
George T. Banzet,
Fred C. Dorsch,
William J. Claassen,
George Judson Brown,
Kauffman L. Meyers,
Julius Charles Schneider,
Finley H. Mason,
Theodore Menges,
Elmer E. Goudy,
William Elmer Allen,
Harry Brazil Adkins,
Mary C. Harter,
Ernst Busch,
John Harlev,
Jane Loretta Kelley,
J. F. Goodrich,
Edmund W. Kester.

MEMORANDA.

Dr. G. V. I. Brown, of Duluth, Minn., was a recent visitor to Chicago.

Dr. John M. Coulter has been elected, and has accepted the presidency of Lake Forest University, Lake Forest, Illinois.

NEBRASKA STATE DENTAL SOCIETY.

The Nebraska State Dental Society will hold its annual meeting at Lincoln, May 16th, 17th and 18th. A general invitation is given to all to attend, and an interesting clinic is promised. D. P. SIMS, *Corresponding Secretary*.
Lincoln, Neb.

I wish to denounce in your journal a young rascal who is going about the country representing to the profession that I am a stockholder in the Dorsenia Anæsthetic Co., which manufactures a supposed anæsthetic called Dorsenia, and that I recommend it.

I have never had any connection with such a concern, and do NOT recommend the preparation, and I wish to warn the profession against their agent, who is a falsifier of the first water. J. W. WICK,
St. Louis, Mo.

The Alumni Association of the Missouri Dental College, Dental Department of Washington University, held its annual meeting March 14th, 1893, in the college building, Dr. DeCourcey Lindsley presiding.

The following names were presented for membership: Dr. J. A. Hulen, Dr. W. E. Weller, Dr. S. L. Jenkins, Dr. P. W. Keller, Dr. P. H. Morrison, and were duly elected members of the Association.

The election of officers for the ensuing year resulted as follows: Dr. P. H. Morrison, President; Dr. G. W. Cox, Vice President; Dr. C. E. Schumacher, Treasurer; Dr. T. L. Pepperling, Secretary; Executive Committee, Drs. Lindsley, Helmuth and Bartlett. T. L. PEPPERLING,
Secretary.

A NEW DENTAL SOCIETY.

Editor DENTAL REVIEW.

DEAR SIR: The dentists of this city have formed "The Dubuque Dental Society," commencing with a membership of fourteen, meeting once each month.

The officers are, Dr. E. L. Clark, President; Dr. H. G. Knapp, Vice President; Dr. J. T. Williams, Secretary and Treasurer; Drs. J. L. Taylor, C. J. Peterson and C. S. Searles, Executive Committee.

The evening of March 17 the Society was banqueted by the President, Dr. Clark, the occasion being the fiftieth anniversary of his commencing the practice of dentistry.

Letters were read from Drs. Edmund Noyes and Dyer, of Chicago, Dr. French, of Eau Claire, Wis., and Dr. W. P. Dickinson, of Minneapolis, Minn., all former students of Dr. Clark, congratulating him on reaching his golden anniversary.

Respectfully,
J. T. WILLIAMS,
Sec'y. and Treas.

ILLINOIS STATE DENTAL SOCIETY, AND IOWA STATE DENTAL SOCIETY—JOINT MEETING.

The twenty-ninth annual meeting of the Illinois State Dental Society, will be held at Rock Island, May 9 to 12, inclusive. The thirtieth annual meeting of the Iowa State Dental Society, will be held at Davenport, May 9 to 12, inclusive. These cities are located on opposite sides of the Mississippi River, and arrangements will be made to hold the meeting jointly, so that those in attendance at the meeting of either society will have an opportunity to listen to the papers, take part in the discussions and witness the clinics of both societies. No efforts will be spared to make this union meeting one of the most interesting in the history of each society. Members of both societies are urgently requested to attend. All dentists are cordially invited to be present. Every one should bring models, specimens, appliances, or anything that may be of interest to the profession.

LOUIS OTTOFY, *Secretary*,
Illinois State Dental Society, Chicago.
W. O. KULP, *Chairman*,
Executive Committee Iowa State Dental Society, Davenport, Ia.

BUREAU OF INFORMATION AND SERVICE.

At a meeting of the joint committee of the Chicago Medical Profession on World's Fair Entertainment, held at the Sherman House, November 1892, the establishment of a Bureau of Information and Service was delegated with approval and endorsement to Chas. Truax, Greene & Co., the committee reserving to itself the duty of such social entertainment of visiting physicians during the continuance of the Exposition as may seem desirable.

This action was confirmed at the final meeting of the joint committee, Feb. 25, 1893, and on application of the Practitioner's Club and the South Side Medical Club, the matter of social entertainment was delegated to them, with full authority to act in the capacity of entertaining bodies, with the intention of the chairman and its American and Foreign Secretaries already appointed.

Chairman, Dr. Chas. Warrington Earle; American Secretaries, Dr. Archibald Church, Dr. Geo. Henry Cleveland, Dr. John C. Cook, Dr. J. C. Culbertson; British Secretary, Dr. Sanger Brown; German Secretary, Dr. F. C. Hotz; French Secretary, Dr. Ferdinand Henrotin; Spanish Secretary, Dr. E. J. Gardiner; Italian Secretary, Dr. A. Lagorio; Swedish Secretary, Dr. K. Sandberg; Canadian Secretary, Dr. R. D. McArthur; Russian Secretary, ———

The scope and duties of the above Secretaries will be designated in the future.

C. WARRINGTON EARLE, *Chairman*.

PROGRESS OF MEDICAL SCIENCE.—THE TREATMENT OF EMPYEMA OF THE ANTRUM OF HIGHMORE.

Professor Chiara, of Vienna, reports twenty-eight cases of this affection: and formulates the following rules as to treatment: 1. In very rare cases empyema, due to alveolar periostitis, may be cured by extraction of the root of the offending tooth alone. 2. Continued irrigation of the nose may also effect considerable improvement. 3. Injections into the antrum, even if undertaken regularly and thoroughly, frequently do not bring about a cure, although, as a rule, some improvement. 4. In cases of recent suppuration resulting from alveolar periostitis, a few injections usually suffice to produce a cure. 5. In only one case was it found possible to successfully inject the ostrum maxillare in such manner that pus was discharged together with the injected fluid. 6. Systematic injections can be easily and conveniently made through the alveolar process; to make them through the lower nasal passage is a very laborious procedure, carried out by the patient only with great difficulty. 7. Insufflations of iodoform powder do not give positive results. 8. During all these various proceedings the antrum should be closed up toward the mouth. 9. The most reliable results are afforded by tamponing the antrum with iodoform gauze, which rapidly arrests suppuration. It should be practiced only once a week; can be easily carried out by every physician, and shuts off the antrum from the mouth. 10. Preparatory to tamponing, an opening varying in size from four to six millimeters is usually made in an alveolus. The opening may be made in the canine fossa, but only if a perforation exists there already, or the patient refuses to sacrifice a tooth, or if it is desired to thoroughly curette the cavity. Tamponing through the canine fossa, however, is always a difficult and painful procedure.—*International Journal of Surgery.*

WOOL AND HAIR—THE FORMER SUBSTANCE IS ONLY A VARIETY OF THE LATTER.

R. R. Bowker, the microscopist and general investigator, says that wool is a kind of hair, and that hair is simply a species of plant rooted in the skin of animals. After discussing its mode of drawing substance from the layers of the skin, he makes known a startling, although not wholly unknown peculiarity of wool and hair, *i. e.*, that their life and growth is not identical with the life of the body, but that they will grow after the death of the animal in whose skin they have taken root. Then, too, he says that the root of the hair exudes the hair pulp, which is formed into cells containing the pigment which gives color to the hair itself; each row of these cells forms a ring. As the rings of cells are pushed away from the skin by the giving out of fresh pulp from the roots the cells dry, forming scales, which curiously resemble miniature fish scales. Thus he shows that a hair is simply a long tube formed of these rings into a sort of sheath. These "saw teeth," which the older writers mention as being one of the characteristics of the human hair, are formed by rings of these dried-up cells, which are very fine and closely set. Goat's hair has a more rapid growth and longer cells, so that it is less regular and straight than that of the human species, consequently it shows little of the tooth-like edge. The hair of the sheep of the common sort is also shown to be irregular, with a tendency to curl or wave, but, unlike that of the goat, shows marked tooth-like edges. Wool has barbed projections along the "hair," which is one of its distinguishing peculiarities. The "wool" of the negro is really hair, but is less perfect than straight hair; the same may be said of "kinky" hair in the white race. Through the whole range of human, plant, goat's hair, and sheep's wool, however, nature shows such close gradations that it would be difficult to draw an exact line or to distinguish beyond a question of doubt between wool and hair.

OBITUARY.

W. W. Allport, M. D., D. D. S.

Dr. W. W. Allport died at his residence, 69 Maple Street, Chicago, on Tuesday morning, March 21st at 1 o'clock. The cause of death was meningitis, preceded by erysipelas. He had been ill about five weeks, the primary irritation having resulted from a mote in the eye.

Walter Webb Allport was born at Lorain, Jefferson County, New York, on June 10, 1824. He was the son of John and Eve Allport. His father was of English descent, and his mother's family came from Holland.

Dr. Allport's boyhood was spent upon the farm until he was eleven years of age, when his father's financial reverses threw the lad on his own resources. He started out in the world with two silver half dollars in his pocket, and walked till he found employment. He willingly turned his hand to anything that presented, and finally at Watertown, New York, learned a trade, which he followed for several years. In the meantime he utilized his spare moments in obtaining an education. In 1844 he entered the office of Prof. Amasa Trowbridge to study medicine. In 1846 he turned his attention to dentistry, and through this circumstance the year 1846 may be counted a fortunate one for the profession. Few men have exerted a more potent influence upon the development of American dentistry than has Dr. Allport. In the early part of his professional career he was associated, either as student or partner, with such men as Drs. Dunning, Robinson, Perkins and Westcott. He moved from Watertown to Rome, and finally to Pulaski, where he practiced four years.

On December 24, 1847, he married Sarah Maria Haddock, daughter of Samuel Haddock, of Watertown.

During the winter of 1852-3 he attended the New York Dental College, acting in the double capacity of student and demonstrator, and graduated from that institution as D. D. S. In 1854 he moved to Chicago, and here commenced a professional career which in attainment is well typified in the development of the city of his selection. Like the city, his early prospects were not promising, but—also like the city—the final result has been "beyond compare."

He opened an office on Lake street, and started practice with very primitive surroundings. His operating case consisted of an ordinary board nailed across one corner of the room, and covered with an old issue of the *Chicago Tribune.* He had no dental chair, and was forced to rent a common barber's chair. Thus equipped, he began work, and a curious and suggestive incident in connection with the first tooth he filled is worth relating. In 1889, thirty-five years later, a fellow practitioner in Chicago had an elderly lady in his chair, and during the sitting she pointed to a certain filling in her mouth, saying: "That was the first filling Dr. Allport inserted when he began practice in Chicago." The matter was mentioned to Dr. Allport, and a consultation of his records proved the truth of the old lady's remark. The filling was subsequently removed from her tooth—having preserved it perfectly for that length of time—another filling inserted, and the gold from the old filling rolled out into a thin sheet. Dr. Allport then cut it into strips, and presented them to his friends as souvenirs.

Beginning with a practice which netted him only $20 the first month, and $39 the second, and which, during the first year barely paid expenses, he finally attained a prominence which gave him one of the most lucrative practices in Chicago, and drew to him the esteem and confidence of the best people in the west. No one man ever did enjoy, and it is doubtful if any man ever will enjoy again, the patronage of so large a per cent of the best families of Chicago.

From his professional brethren he was the recipient of many honors. In 1858 he was elected President of the Western Dental Society, in 1865 President of the American Dental Convention, and in 1886 at Niagara Falls, he was made President of the American Dental Association. In 1881, Rush Medical College, of Chicago, conferred upon him the honorary degree of M. D., and few men in dentistry have been on more familiar terms with the medical fraternity than he. He was largely instrumental in establishing the Dental Section in the American Medical Association, and also in the organization of a similar Section in the Ninth International Medical Congress, which met at Washington in 1887. It was entirely due to his influence that the American Medical Association passed a resolution in the same year, admitting reputable dental graduates to full membership in that body.

In the early days of dental periodical literature Dr. Allport edited and published the *People's Dental Journal*, which ran for two years. In fact it may truly be said that he always did his full share in fostering the interests of his profession, along all lines of its development. His death, therefore, not only causes a sad bereavement to his family and friends, but marks a distinct loss to the dental profession. He leaves a widow, who was in Europe at the time of his death, and four grown children, three sons and a daughter.

As an individual, Dr. Allport will long be remembered by those who had the honor of his acquaintance, on account of his many striking characteristics. He was commanding in appearance, dignified in bearing, and at all times perfectly poised and polite. He was the embodiment of elegence, whether speaking in a dental society, or attending to patients in his office. He was a friend to the friendless at all times, a man warm in his attachments, tender in his sympathies, and fearless as a lion in his convictions. In ability he was a giant. He was the peer of any man, living or dead, as a operator; and his hand never lost its cunning up to the time of his last illness. Some of the very latest work he did will stand for long, as a monument to his manipulation.

And he was unassuming. This man who claimed the confidence and patronage of the highest people of rank and intellect, never once presumed on his position to belittle any one. He stooped with winning grace to take by the hand the lowliest, humblest, youngest member of the profession, and when he stood erect again, he raised the young man with him. From his presence there always gleamed a gem—the precious pearl of modesty. While he had the magnificent courage to contend to the bitter end for what he believed to be right, he also possessed the sublime manhood to admit his fault when he found himself in the wrong. He was strong enough to yield.

He had his faults, and he made mistakes; but this is only saying that he was human. We who have our faults, and who make mistakes, feel closer drawn to him because he was not perfect. One of his greatest errors gave a touching phase to his life. He wrought more for posterity than for himself, and in disregard to the entreaties of friends and relatives, he persistently preserved the proceeds of his lifetime of labor for those he loved, instead of enriching with it his own existence.

But he is gone, and we mourn for him to-day—we, who knew him well. Another link is broken in the chain which binds the old to the new. These pioneers are passing on. Their work is ending, and we of the latter day bow in humble reverence with uncovered heads, and yield to them their meet of tender tribute. Around the memory of the departed, we weave a garland filled with fragrant flowers—a wreath of sweet Forget-me-nots. C. N. J.

FRED. A. LEVY, D. D. S.

In the death of Dr. Fred. A. Levy, which occurred on March 21, New Jersey has lost one of its foremost men. Dr. Levy was a native of Richmond, Va.; received his collegiate education at the Mobile, Ala., college, and graduated from the Baltimore college of dentistry in 1873. He commenced practice at Orange, N. J., in 1874; became a member of the New Jersey State Society in 1875; its President in 1879; a member of the State Examining Board in 1881, and when the law of April 7th was passed creating a State Board of Examination and Registration in dentistry he was made its President and occupied that position at his death. Dr. Levy was also Vice President of the American Academy of Dental Surgery of New Jersey, Ex-President of the Central Dental Association of Northern New Jersey, Corresponding Secretary of the American Dental Association, Secretary of the National Board of Examiners and Chairman of the Finance and Registration Committees of the State for the World's Columbian Dental Congress. He was a man of generous impulses, high sense of professional honor, and his time, money and services were enlisted in the advancement of dental education and professional advancement in New Jersey. His age was forty-two. A daughter of thirteen survives him.

DR. FRANZ BERGGREN.

The Swedish court dentist, Franz Theodore Berggren, died in Stockholm, Sweden, July 8th, 1892. He was born in November, 1837. He is credited with having done for dentistry in Sweden as much as any other man for its elevation in the minds of the people. He had been selected as the honorary president of the dentists of Sweden to the Dental Congress before his death was known in this country. For a period of nearly twenty years he was the court dentist and was highly esteemed. An appreciative biography of Berggren was published in the Swedish dental journal for January, 1893.

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ORIGINAL COMMUNICATIONS.

CROWNS.*

BY E. A. ROYCE, D. D. S., Chicago, Ill.

It is not my object in this short essay to try to reveal any new or unheard of process in crown work, or, for that matter, to bring before you the *usual* methods of manipulation. I do not claim to be an expert in this particular branch, but we have with us men who have crown work so systematized that they may be called specialists in crown and bridge work. Probably each has some little trick, some method of procedure that they find of assistance to themselves, and as each one will doubtless be willing to give us his particular way of doing when the subject is open for discussion, and as we expect to hear a paper of merit on bridge work, I will make my remarks as brief as I can, and criticise as much as I desire the crown that others have inserted.

Up to twenty years ago crown work was comparatively unknown; men practiced dentistry for years and never found a place for an artificial crown. Perhaps this was because the few efforts that were made to save the roots of teeth, after the pulp was devitalized, was attended with such a large proportion of failures. In my own day I have known men who had large and lucrative practices, and were considered to be good dentists by their patients, who had never inserted a crown, and more than that, had never seen the operation of crowning performed.

Contrast that with to-day, when all dentists pretend to crown roots.

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*Read before the Odontographic Society, of Chicago.

No place is so remote, unless it be in the jungles of India or forests of Africa, that the gold band of the artificial crown and gold shell is not displayed in the mouths of people of all degree, from the scrub woman to the queen and from the laboring man to the bloated bond holder.

All have been crowned. Some with crowns that are beautiful to behold and sources of joy and comfort to the wearer, and some with crowns that look as if the crown had, through no fault of its own, but as a matter of spite, been lodged in the mouth where it would look the most out of place.

The executive or mechanical part of crown work I will not attempt to describe, but there are a few points I wish to emphasize. I think them most important.

First to be considered is when shall a tooth be crowned. As a rule no tooth should be crowned or capped that can be filled with a fair prospect of preservation.

At the present time many are inclined to shirk the labor and nervous exhaustion of long gold operations, saying, that "if there is a good sized cavity in the tooth they can excise the crown and replace, in the time it would take to fill the cavity, with less arduous labor and get a larger fee for the operation." I have heard this said repeatedly.

What would be your opinion of a surgeon to whom some one should apply with a thumb or finger to be amputated and you should hear this brilliant surgeon say, well I will take the hand off at the wrist. I can do it easier and get a better fee for it." Do you think you would place yourself under the care of that man?

Yes, but you say an artificial hand does not fill all the requirements of a hand as a crown does the place of the natural tooth.

Admitted— but if you can save the natural crown for three, five or ten years the liability to peridental trouble will be enough less to pay for the labor of filling.

But suppose we decide to crown, what shall determine the kind we will use? The first porcelain crowns were used without a band and were held in place by a dowel of wood, and some of these not only did good service but presented an exceedingly natural appearance. The Bonwill and Logan crowns so far as appearance go, rank first for all anterior teeth. It is very difficult to select a tooth which when backed and soldered will shade to be a perfect match to the adjoining teeth. This can in some degree be overcome by backing and soldering several teeth and then selecting the best shade, but the shape and color of a Logan crown is so much better than the band crowns that I many times prefer them.

The objection of no band to protect the root has not quite the weight with me that it had some time ago, for Bonwill crowns without bands, mounted ten or twelve years ago upon fairly good roots are as good to-day as ever. Of course the condition and structure of the root must be considered, and a frail root, or one of poor structure, should be banded.

This is sometimes done very satisfactorily by using a Logan crown and fitting a band to cover the joint, or the more common band crowns may be used.

So far, except for teeth that were very much abraded so as to make the upper and lower oral teeth antagonize directly in closing and leave the tooth very short, I have never had occasion to use an all gold crown on any of the oral teeth; except for some case where no other crown *can* be used, it is very much out of taste to place one of these glaring pieces of jewelry in the front of the mouth. The molar teeth, and sometimes the bicuspids, would receive shell crowns.

There is an old saying that "experience is a dear teacher, and none but fools learn that way;" be that as it may, experience has taught us some things about crowns.

The foundation of the crown is the root. Upon its health, vitality and endurance, the life service of the crown depends. Most of the various methods of treating and filling canals seem to be successful in the hands of their exponents.

The Chicago method of antiseptic noncoagulant treatment and chloro-percha filling answers best in my hands.

It has been advocated that all pulps should be killed if shells were to be adjusted. The reason given for this wholesale destruction of pulps is, that grinding the enamel irritates the pulp so it will be stimulated to calcify and eventually die under the crown, causing no end of trouble. I have not data which would justify me to advise upon this subject, but I mention it for it is a point worth thinking of, and more than one has spoken to me about it.

One of the most important things is to obtain a band that fits the root; shaping the root may be done by any means thought best, but it should be so shaped that when the crown is in place the band will not stand away from the root above the gingival margin, but will fit closely, so that if the edge is properly beveled there will be a smooth joint approximating as nearly as may be the natural condition existing when the enamel was in place.

I know this has been urged many times, but observation and experience tell me that this is a point where we are likely to say let it go—it will do. But it will not do, for if we have irritation at this point we have irritation of the soft tissues surrounding the tooth, and this irritation will tend to recession of the gum and loosening of the teeth.

There has recently come under my observation two shell crowns that were fitted to leave a space between the edge of the crown and the gum large enough for the food to collect; the pulp in one tooth (a lower molar) is alive and the tooth is exceedingly sensitive to the touch. Even with better care than is usually bestowed upon teeth it is impossible for the patient to keep this place clean. I can see nothing ahead of a case like this but failure. Already there is incipient decay and constant irritation of the gum by the presence of the debris or by removing it after each meal. The other extreme of driving a band clear up to the process seems worse even than leaving it short, as we all know an impingement of the gold upon the process would cause its breaking down either by absorption or necrosis. The gold should be fitted nicely under the gum, shaped to agree with the gum margin and fitted to the root and beveled.

This point was nicely illustrated by Dr. Weeks at the State Society and published in the DENTAL REVIEW.

The contour of the crown should be similar to the tooth crown that it replaces. All that could be said in favor of contouring fillings can with equal force be urged in the contouring of crowns. Preservation of the interproximate spaces is urged so strongly by Dr. Black in the paper published in the June REVIEW that I need hardly mention it. Not only should the spaces, but also the arched form of the gum in this space be preserved to direct the food to one side when it is crowded between the teeth down to the gum.

The preservation of contact is not difficult, but preservation of the gum tissue in the space is not so easy. The tooth to be crowned is usually broken down for some time and the teeth on either side tip toward each other, annihilating the space between the necks of the teeth. If we trim the root in this case and put on a crown to fill the space as we find it, the articulation will be to a greater or less extent destroyed by the malposition of the adjacent teeth, the sides of the crown will follow the proximal surfaces of the teeth, increasing materially the surface of contact, thereby increasing the chance for food retention and at the neck of the tooth the gold will be in contact with the adjacent tooth, leaving no space for gum tissue. In many cases it is well to force the teeth back to their places so that they will be in contact with the teeth beyond them, and then place a crown contoured so as to hold them in their normal position.

One of the urgent reasons for good points of contact is the support offered to a tooth by its fellows on either side. Each tooth has a limited movement in the socket, the root is swung so to speak in the socket by the fibers of the peridental membrane. In the perfect arch this movement is limited. The oral teeth move forward easily but press laterally or backward, and the resistance is very great, remove the points of contact and the tooth will move with equal facility in any direction.

A tooth that is filled or crowned and left without the support of its neighbors by the proper contact will loosen. Of course this is not done in a day or a week, but each of us can find many cases where it has occurred.

The articulation of crowns and teeth as well, does not receive the attention that it demands. The labor performed by each tooth should be its share of the whole work, unless there is some reason for a variation—as one tooth stronger or weaker than its fellow, in which case the burden should be varied to meet the demand.

The crown should be left a little short for if it quite hits its antagonist at first it will soon be found doing more than belongs to it. Constant abnormal pressure upon any tooth will soon change a physiological to a pathological condition even under the most favorable circumstances, and how much more should we expect pathological conditions in this case, for we usually have a pulpless tooth and the gum has been freely cut and gouged in fitting a band around the root, and said band still remaining there as an irritant to the gum tissue, and either directly or indirectly through mucous membrane and periosteum the peridental membrane is irritated. Add to this the constant blow or a sliding blow at each closing of the jaw and pericementitis is almost sure to follow. The least inflammation of the peridental membrane of course projects the tooth from its socket by the thickening of the tissue. This increases the blow so that finally we have the tooth projecting from the socket far beyond its normal distance. I have seen cases where the root was forced into the socket nearly or quite $\frac{1}{16}$ of an inch at each closing of the jaw. The frequency of these cases has led me to believe that the importance of articulation has never been appreciated.

If a large bridge is to be built across a river for the use of heavy traffic the first thing to be done is to consult some expert engineer, a man who has made a study of that class of bridges.

The engineer after deciding the location of the bridge begins a series of borings and soundings to find out the nature of the soil upon which he must build his abutments and piers. This is the first and greatest consideration, for no matter how skillfully the bridge is built it counts for nothing unless these abutments and piers are so constructed that they will settle evenly and retain their relative positions; each portion resisting its relative portion of the weight and strain that will be put upon it by the heaviest possible load.

In constructing dental bridges how many of us pay an equal attention to the abutments and piers. A piece of work is to be placed in the mouth that is to cost the patient time, trouble and money, and if properly inserted it should be durable and comfortable. But how many are thus? And if they are not—why not?

You all find the cases that Doctor Some body-else put in that "cost $400, and lasted four months," or "the piece was so uncomfortable that I could not endure it." Now, I ask you each one to think how many cases of this class come to your minds in which the engineer had taken the borings into the ground to find the condition of the earth upon which he was to build.

Was the peridental membrane healthy? If not what was the cause and can it be removed? Can a crown be fitted perfectly? Is the pulp alive? If so should it be devitalized (even if healthy) before the shell is put on? Can you get the articulation so each root that supports the piece will have its relative share of the work to do, and that share not more than it is capable of enduring? Have enough abutments and piers so that the bridge will not act as a lever, and by constant side pressure or pull loosen the roots.

I know that my remarks were not to be on bridge work, but the lack of judgment in selecting the roots to crown, the lack of skill in preparing and crowning those roots, the lack of engineering skill in the division of labor, the lack of proper bearings and balance of bridges in mouths to-day is bringing into disrepute what, with proper care and skill, is one of the most beautiful and serviceable operations that the dentist can perform—the uniting together of several crowns to bridge the space of several lost teeth.

OPERATIVE TECHNICS.*

BY L. S. TENNEY, D. D. S., CHICAGO, ILL.

When my name was placed upon the programme for a paper this evening and I was requested to take as my subject Operative Technics, I complied with considerable reluctance, feeling that possibly so many of you were familiar with this course that it would prove a wholly uninteresting subject.

Upon being assured, however, that the course of study and training as conducted in this department in the Chicago College of Dental Surgery and the results attained therefrom were not generally understood, I consented to give a brief outline, believing as I do that this is one of the most essential features of the college curriculum.

This department was created by the Chicago College of Dental Surgery in the winter session of '88 and '89, and the class as then organized was known as "The Pioneer Class of the World in Operative Technics."

It is very true that previous to that time some preliminary technical training had been adopted by a number of the better colleges, but the work for the most part was incomplete, was in a measure optional with the student and was lacking in many features which have made the course so successful in the college of which I speak.

Not until the session of '88 and '89, therefore, was the work thoroughly systematized and made a special requirement of the freshmen year.

I may say that the main objects of the course are three in number:

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*Read before the Odontographic Society, 1892.

1st. To afford a thorough study of the anatomy of the teeth as regards both their outward form, but especially the character of their central canals.

2d. To familiarize the new student with the general principles in the preparation of cavities, the nature and methods of manipulating the various filling materials and the use of dental instruments; and

3d. To afford a manual training preparatory to his practical work in the infirmary.

In carrying out the first object of the course, the study of dental anatomy, no time nor labor is spared in making it full and complete and at the same time thoroughly practical in every particular. I would not care to take up your time with a detailed account, but will briefly describe the method of teaching adopted in this portion of our work.

At the beginning of the course we have on hand a large number of natural teeth, and with these before us we begin a careful study of their form, noting first the characters common to all such as crown, root, gingival line, pulp chamber, root canals and the various surfaces. Then examine the variation in form between the different classes and finally enter upon a careful study of each individual tooth as regards both its typical and unusual forms.

I have endeavored in this work to follow a system as nearly as possible and as each tooth is taken up separately we study first the general form of the entire crown, then the general form of each of its surfaces, keeping very carefully in mind the size and location of all ridges, developmental grooves, fossæ, cusps and sulci, noting also the points at which pits or fissures and in consequence of these decay is most liable to occur.

Passing to the root, the same general method of study is followed and finally we begin our examination of the pulp chamber and canals.

You are all doubtless familiar with the dissections which are made for this purpose..

Beginning with the central incisor we invest it in a quantity of sealing wax, and file it upon one of its lateral surfaces until the canal is fully exposed from the apical foramen to its extreme coronal portion. This gives us a labio-lingual section. Another tooth of the same denomination is then filed upon its labial or lingual surface which gives us a mesio-distal section.

In like manner dissections are made of each tooth of the entire denture, and in addition to these cross sections of the posterior teeth are prepared showing progressively the size and form of the canal throughout its entire length.

Having thus prepared our sections they are properly inked and a number of silhouettes made from them. With these before him it will be seen that the student may familiarize himself with the size, form and location of each canal and tell whether it be straight or tortuous, single or bifurcated, flattened or rounded, also the distance it passes into the crown of the tooth and the thickness of its surrounding walls.

He is impressed with the necessity of accurate knowledge of this subject, the disastrous results which are apt to follow the insertion of a metallic filling too near a living pulp, and the evil consequences of leaving unfilled a single minute canal.

For this study in dental anatomy the first ten weeks of the course are required, after which work of a different character is taken up. This consists in a study of the treatment of teeth having exposed living pulps, and the management of those diseases resulting from the death and decomposition of this organ.

The student invests a number of carious teeth in a plaster model and is then supplied with a few of the most efficient remedies used in the treatment of these diseases. Each tooth is assigned a certain diseased condition, and as the treatment of this is considered the student applies the remedies as in actual practice, and at the end of the treatment the canals are properly filled with gutta-percha.

I hasten through this matter to consider for a moment the work of the latter half of the session.

Having invested a number of carious teeth we begin the preparation of cavities.

First the character of enamel is studied, its composition and structure, the direction of its prisms and its relation to dentine the direction of cleavage and the ease with which overhanging walls are fractured.

Then the general principles in the preparation of cavities are discussed, the form of cavity most desirable, the removal of diseased tissues, the formation of under-cuts and the shaping of margins. At the end of each lecture the student proceeds to the practical application of the principles laid down, and as he goes step by step through the different operations is given instruction in the use of instruments, the ones to be employed for each operation, their care and manner of handling.

To the new student who has had no practical experience it would be entirely useless, if not unnecessary, to attempt to teach the preparation of special classes of cavities. Upon his entrance into the Infirmary it is enough for him to know the general and groundwork principles to be observed, and it is these that I endeavor to have fixed thoroughly in his memory.

As we proceed then with the preparation of cavities they are filled with the various materials used for this purpose in actual practice and each is taken up separately, its compatibility with tooth structure is studied, its physical properties and its favorable and unfavorable qualities as a filling material.

We begin with gutta-percha and cement, follow this with amalgam, then tin and finally tin and gold in combination and gold alone.

Taking up amalgam, its property of conducting thermal changes is noted, its spheroidal tendency and methods of partially overcoming it, the action upon it of oral fluids and the manner of its manipulation.

A number of fillings of copper amalgam are also inserted. We prepare this in the laboratory by precipitating metallic copper from an aqueous solution of its sulphate by the use of a sheet of pure iron. Having driven off the surplus mercury, washed, dried and moulded the precipitate, a fairly good quality of amalgam is obtained. We have not laid much stress upon this material, having simply called attention to its color, antiseptic properties, solubility in the oral fluids, and its freedom from any extensive change of form.

In the handling of gold we are limited somewhat by the expense of the material. The study of the subject, however, is thorough, its physical properties being carefully considered, its qualities as a filling material, and its manipulation in both the cohesive and noncohesive state.

Each student is required to fill a simple cavity with cohesive gold, and a compound cavity with tin and gold at the cervical wall, completing the operation with gold alone.

He is given instruction in the use of the various hand and mechanical mallets, the handling of pluggers, the methods of starting fillings, the annealing of gold, its condensation at the margins and in the main body of the filling, and the manner of finishing.

And so it seems, gentlemen, that I might go on with the subject almost indefinitely, for you are aware that this work extends over a period of six months, and in that time a vast amount of technical training may be accomplished.

I have called your attention to only a few of the more prominent portions of this work, not caring to take up your time with a description of many other features of more or less importance, such for instance as instruction in the application of the dam, the adjustment of ligatures, the disinfecting of instruments, the use of clamps, separators and wedges, and many details of actual practice.

In closing then I wish to call your attention to the good results accomplished by this course of preliminary training. You are aware that during the past few years no subject has commanded the thought of the profession more earnestly than that of dental education.

Our colleges, our societies, and the profession as a whole, are united in the efforts to improve our methods of teaching, and better our facilities for practical training, and I consider that among the rapid strides that have been made, not the least of them has been the inauguration of this work in the technical departments. It affords first a manual training, without which the brightest and most intelligent student is but a bungler at the operating chair. This is a matter which it seems to me has heretofore been sadly neglected in problems of dental education.

The imparting of theoretical knowledge, and the development of practical manual training should be given due and equal consideration in every college. Of what use is it to a student to know every principle, every method, every rule regarding the preparation of a cavity, or the insertion of a gold filling if he does not possess the mechanical ability to carry them into effect. It is very true that we have in every class a certain number who having spent a few years in the office of the practitioner, have partially obtained a mastery of instruments and of the hands, but by far the larger proportion is made up of those who have never had the advantage of this private instruction, and enter the college therefore, untrained and unskilled. It is to supply the needs of such that this course is specially adapted.

Another point: It seems that it is within only the past few years that our colleges have awakened to the fact that the student of dentistry should be made familiar with the structure of those organs upon which he is to operate, before permitting him to enter into actual practice in the infirmary.

What would be our opinion of that medical college which allowed its students to perform or attempt to perform surgical operations without first having thoroughly studied the anatomy of the human body and made extensive dissections. And yet we have seen students enter dental infirmaries and have patients assigned to them in whose mouths many delicate operations were needed, hardly being able to tell the difference between an incisor and a molar, and not knowing but what the root of a tooth contained a dozen canals or none at all.

We have seen them enter infirmaries with no preparatory manual training whatever, without the slightest knowledge of the structure of enamel and dentine, and not knowing one rule governing a single operative procedure. This cannot be other than an injustice to the student and an imposition upon the patient.

By means of a course of preliminary training let him first be made familiar with the instruments he is to use, the structure of the organs upon which he is to work, the rules governing the operations he is to perform before permitting him to practice upon living sensitive tissue.

Such a course of training is afforded in the department of Operative Technics. I would not have you believe me overzealous in this matter. We do not claim to offer a dental education in this department, but we do claim to send the student from here into the infirmary with an intelligent idea of the duties which there devolve upon him, and with the manipulative ability to discharge those duties well. I believe the time is not far distant when the department of Operative Technics will occupy a prominent position among the educational facilities of every dental college.

INTERPROXIMATE SPACES.*

BY C. E. MEERHOFF, D. D. S., CHICAGO, ILL.

Probably at no time in the history of the dental profession, has the plea for more thorough manipulative skill seemed so imperative as to-day.

The uncalled for haste in operative work, owing to a limited allowance of time, would seem to explain, partially at least, the unfinished if not hasty and faulty operations that are constantly being brought before us. And this fact further appears to be on the increase rather than otherwise.

To this, together with a lack of reliable literature upon the subject, until of comparative recent date, may be attributed, to some small degree at least, the faulty condition of such great numbers of interproximate spaces with which we continually come in contact; and the frequency with which they are met, should impress all with the subject of their great importance.

This subject has been handled within the past year in so masterly a manner, that the utmost to be expected from this paper at this time is the rehearsal of the points of greatest importance.

Dr. Black, in a paper upon this subject, presented at the meeting of the Illinois State Society in May last, and in previous articles in the *Cosmos* and REVIEW seems to have furnished the substance of the literature bearing directly upon this topic and while I can scarcely hope to treat it in his most estimable manner, I trust this brief statement may evoke a hearty discussion.

Before proceeding further, it might be well to review very briefly the interproximate space, as to its position, size, etc., not entering into minute detail.

This space, existing between the distal surface of one tooth and the mesial surface of its neighbor, except as applying to central incisors and wisdom teeth, is in reality not a space in its general acceptance.

Being of a somewhat pyramidal shape, its base being the alveolar border and its apex the point of contact of the teeth, it is, in its normal condition, completely filled by the continuation of the gingival tissue.

In width, it varies greatly in different teeth of the same denture, those between the molars being larger than those between the central incisors and the latter wider than the central-lateral incisor spaces. The largest spaces are found between that variety of teeth familiarly designated as having belled crowns.

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*Read before the Odontographic Society of Chicago.

The minimum width of these spaces, according to Dr. Black, mesio-distally at their bases is approximately from ten to fifteen hundredths of an inch, his measurements of the arch at the points of contact of the teeth being five inches, while that of the same teeth at their neck, showed but three and one-half inches, leaving to the interproximate spaces, one and one-half inches of the entire length of the dental arch.

Being filled by the gingival tissue, this space in its normal condition should be nearly self-cleansing.

Owing to the mechanical plan of its arrangement, particles of food becoming crowded between the teeth are very readily displaced by the mere act of mastication; they being forced upon the apex of the gingival septum and in this manner easily liberated, either to the buccal or lingual side.

Presuming that the cardinal points relative to their arrangement, etc., are clear, let us now consider the preservation or reproduction of the interproximate space.

The question now confronts us, *what* constitutes a perfect interproximate space?

Complete restoration of the original form of the tooth will not always accomplish the desired end. The varying forms of teeth and their abnormally developed angles, will in many cases preclude the possibility of their being reproduced, with the object of approximating nearest to a perfect space.

The most perfect interproximate space is that one so arranged that it provides a self-cleansing space, a well-rounded or contoured surface, the minimum point of contact, and a space of such shape and size to permit of the maintenance of a healthy gum septum, or its reproduction, if it be lost.

The maintenance of a self-cleansing space is of the utmost importance, since it is thus that a healthy gum septum is provided; for without it the space is a mere opening affording a convenient place for the lodgment of food particles, which in turn by their chemical change, are a constant menace to the integrity of any filling if not producing to a greater or less extent inflammation of the peridental membranes, or affections of a more serious character.

The necessity of the production of a well-rounded shape to the tooth, is clearly demonstrated to us quite frequently, for it is not seldom that patients come to us presenting the anterior teeth, if not the posterior ones also, with flat fillings on their mesial and distal surfaces inserted without regard to the preservation of the interproximate space, and in consequence tipping toward the median line and their proximating surfaces in contact from the gum margin to the cutting edge.

This is not noticeable only, for the condition of the gum septum, but the great change in the expression of the face, given it by the altered outlines of the dental arches.

It has been clearly demonstrated that teeth with a minimum point of contact, afford the least surface for the lodgment of food debris; in such cases the slight movement of the teeth in their sockets, causing a gliding movement of the teeth at these points, readily facilitates the dislodgment of such particles, thereby conducing to a favorable condition of the gum septum.

The presence of the gum septum in a healthy state is very essential, for it is clear to us that a cervical border of reasonable perfection, is in better condition to successfully cope with the extremely dangerous action of acids and ferments, if protected by a covering of gingival tissue, than if left with such surfaces exposed.

The imperative necessity of the preservation of the interproximate space is at this time no idle fancy, hence some few precautions or rules of practice immediately become manifest.

Among the foremost in importance, is the acquiring of sufficient space, to enable the operator to properly perform the task at hand.

It is needless at this late day to refer to the dire effects of the Arthur method of separation: indeed it is a question if the file used for such purposes has a place in the dentist's cabinet to-day.

It is at least bad form to make use of a file for this purpose and it is rarely I think that good results are obtained where such method is employed.

Sufficient space should therefore be acquired by the use of cotton, rubber strips or where necessity demands, suitable appliances for quick wedging, and no attempt should be made to fill the tooth until such favorable conditions do exist.

The care of the gum septum here presents itself, for it is in no small number of cases that its continuity is destroyed by wedging, the use of wooden wedges, cotton, or the introduction of cotton or gutta-percha in the treatment of pulp cases.

Great care should be exercised, not to allow them to project beyond the cervical border of the cavity, very frequently the result of injudicious wedging is almost irreparable even though a good space and point of contact have been obtained.

Another source of great injury to the gum septum is the use of saws and files; this is also to be discouraged for in many cases the gum septum is lacerated if not completly obliterated and while it may be regained in almost all cases, the pain accompanying the practice more than warrants its abolition.

The finishing of a filling, no matter how carefully studied and planned, is of the utmost importance. How frequently the inopportune use of file or disc may perhaps have jeopardized the very principle the operator has labored many moments to accomplish.

The use of a very fine separating file to produce sufficient separation to permit the passing of a suitable strip for polishing, is perhaps admissible, and yet I think there are few cases where a fine flat burnisher will not supply the necessary space.

The careful finishing of the cervical border should be accomplished by use of some of the many forms of files now to be found upon the market.

Dr. Black's set of proximal finishers seem to be admirably adapted for the purpose. He also suggests the use of a thread saw, used with the smooth side toward gum, and cutting toward the occluding surface. These latter, however, I have not yet seen upon the market.

The use of narrow strips at the gingival border, gradually increasing the width as the finishing progresses until the point of contact is reached, will insure the consummation of the one object in view, namely a sharp point of contact with an increase of space as it approaches the base or gingival border.

The disc may be made use of for the purpose of rounding and polishing the lingual and buccal walls, but should not be passed between the teeth, for by so doing the effects of all previous efforts to gain a prominent contact point may be entirely obliterated and a flat filling result.

The entire procedure of preservation of the interproximate space is of such great importance that the tact and skill of the operator is constantly being called upon. The minutest details should be guarded with zealous care, the successive steps from separating to finishing each and every one requiring the greatest care and circumspection.

Chloro-Percha as a Dressing in Wounds.

By Dr. J. S. Letord, Kansas City, Mo.

The short paper that I have here to present for your consideration, treats of a subject which, at first thought would seem to belong more properly to the sphere of the physician than the dentist. But the fact that the dentist is frequently called upon to act the part of a physician in minor accidents, especially in his own family and among his nearest friends; and the fact that the materials used in this mode of treatment are nearly always found in a dental office is my apology for presenting it to the St. Louis Dental Society.

I have found chloro-percha to be an excellent dressing in burns, contused or incised wounds, of not too great a magnitude. A thick solution made of gutta-percha in chloroform, properly applied, will close a wound, preserve the parts in suitable coaptation, shelter them from contact with air, protect them from foreign agents, whether mechanical or chemical. Keep the surface of the solution of continuity at an even temperature; consequently the parts are kept aseptic, and union by first intention without pain is the result.

Wounds which usually require sutures to bring their margins in apposition, are successfully treated with the solution. It is manifest that the application of this solution to burns will be desirable, and experiments have demonstrated such to be the case. The pain is always almost instantly alleviated in wounds of the gum after extracting.

The application of this styptic and splint, if you please, is both grateful to the patient and pleasant to the surgeon. The socket in the alveolus is filled with a pledget of cotton dipped in the chloro-percha and allowed to remain until it is forced out by the contraction of the tissues. In ordinary open wounds, neither suture nor bandages are required; simply apply the chloro-percha and the wounds will heal, not only perfectly and well, but without pain or inflammation.

Fissures of the lips, margins of the eyelids, and fissures of the rectum are markedly benefited and cured by the application of chloro-percha. In extensive wounds of the fingers, when a splint is needed, the continued application of the chloro-percha, one coat after another, until the desired quantity is reached is all that is necessary. It is splint, bandage, and anodyne lotion all in one.

DISEASES OF THE ANTRUM AND TREATMENT.*

BY E. MAWHINNEY, D. D. S., CHICAGO, ILL.

I deem it wise at the outset of this essay to give a hasty review of the anatomy and physiology of the antrum, in order to recall to your minds some particular points I wish to dwell upon.

It is a somewhat irregular pyramidal shaped cavity, situated for the most part within the superior maxillary bone. The base bears toward the nasal fossæ, its apex toward the malar process. It has four walls, one extending toward the orbit, another toward the nose and roof of the mouth, a third toward the facial and zygomatic surfaces of the bone, and a fourth toward the alveolar border.

This sinus opens into the nose by an orifice at the base of the pyramid. This orifice is partially closed by portions of the ethmoid, palatal, inferior turbinated, and lachrymal bones, and by soft tissue, so that the normal opening is about the size of a small lead pencil. The orbital wall and the wall immediately over the canine fossæ are usually very thin, and in many subjects, the alveolar wall is also very thin, so that the palatal roots of first and second molars nearly penetrate it. The antrum is frequently divided into several compartments by very thin bony septa. The posterior dental vessels and nerves pass in through the posterior wall to supply the posterior superior teeth. It is lined by a mucous membrane quite analogous to the Schneiderian membrane ; it is made up of ciliated cells which are so arranged as to carry the natural secretions toward the orifice, and thus rids itself of what would otherwise accumulate and become a source of trouble.

The antrum is subject to many diseases, which, for my convenience, I divide into four classes, according to the causes which produce them. The first and most important class to the dentist, are those lesions resulting from dental disturbances. The pus from abscessed teeth or roots makes its way into the antrum, and sets up an irritation which finally results in what is known as abscess of antrum. The presence of this foreign substance causes the mucous lining to become congested, its absorptive power is impaired, and the excretive powers stimulated. The ciliated cells cannot carry off the fluid, so that the sinus becomes engorged with matter which soon becomes degenerate. If the natural opening into the nose remains, the fluid will escape into the nasal cavity causing little annoyance, further than a heavy feeling in that locality, a bad taste and very offensive odor.

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* Read before the Odontographic Society, of Chicago.

The absence of acute pain has caused many patients and general practitioners to confound this disease with nasal catarrh; and, indeed, I fear many dentists are brought in contact with this disease without discovering it, because their special attention is not called to this catarrh by the patient. I feel it a duty we owe those who come into our care, suffering from catarrh of the nose, to make sure the antrum is, or is not, the source of the trouble.

Should the natural opening become closed from any cause, and the disease not attended to, the effect will certainly be very serious. The rapid accumulation of fluid with no way of escape, will by its pressure, not only produce excruciating pain, but may impair the sight, by forcing the thin orbital wall outward, interfering with the optic nerve; or distort the features, paralyze the muscles of expression, and, indeed, may seriously interfere with the sense of hearing as well as that of smelling.

The diagnosis of these cases is sometimes quite difficult, and good judgment and care must be exercised. The electric transluminator will assist greatly. To use it, the patient is placed in a dark room, the transluminator placed in the mouth, lips closed. If the walls of the antrum be thin, you can readily detect the disease. However, if the walls are thick, it is not safe to rely upon it, and tapping must be resorted to. This is best done by introducing a small trochar through the nasal wall or over the canine fossæ, or between the palatal roots of first and second molars as the case may indicate. In places where the pus makes its escape into the nose, mouth, or on the cheek, diagnosis is comparatively easy. After having discovered the disease it is sometimes very difficult to determine the exciting cause. The mouth should be carefully examined for teeth with dead pulps, pieces of roots or necrosed bone, especially in the region of the bicuspids and molars. If the cause be not there, look elsewhere; for while most of the diseases of the antrum have their cause in the mouth, it is a mistake to suppose they all do.

The second class of diseases are those whose exciting cause lies within the nasal cavity. Catarrhal conditions of the Schneiderian membrane, on account of its proximity, may affect the antrum in two ways: First by that disease extending to the antral lining (and there is no doubt but that this often occurs); Second: by causing the lining of the natural opening between the nose and the antrum to become swollen so as to partially or wholly close it.

The presence of nasal polypi may bring about a hyperæmic or catarrhal condition of the antrum and may close the opening, bringing about a condition of things not unlike that already mentioned.

The third class of antral diseases are those whose source lies within the sinus itself; which may be the presence of a bullet, portion of a root of a tooth, or, for some cause, the septa of bone may have become necrosed or it may be a tumor.

To successfully treat any of these three classes of diseases, the pus must first be drawn off, the exciting cause removed, then follow with good drainage, cleanliness, and antiseptic treatment. In treating a case of abscess of the antrum were the cause lies within the mouth, if the first or second molar be gone or so far destroyed by caries or anything else, as to make it impossible to restore it to usefulness, it should be extracted and an opening made into the antrum through the alveolar wall in the position that tooth occupied. This opening should be sufficiently large to carry off the fluid, but not so large as to make it difficult to close. In order to retain this opening it is many times necessary to insert a tube, which is fastened to an adjoining tooth. Care must be taken to have it neither too short or too long. If too short the mucous lining will grow into or over it. If too long it will prevent free drainage. This being the most dependent portion of the antrum it may readily be drained. The thin septa of bone should be broken down and removed, then thoroughly irrigate with warm water rendered antiseptic by the addition of a little resorcin, or any emollient antiseptic. If the opening be large, this should be followed by injections of peroxide of hydrogen. It must be borne in mind that peroxide must not be used unless the opening be large: as, the rapid generation of gases will cause most excruciating pain unless they escape readily. After the sinus has been thoroughly cleansed and dried, it is my practice, generally, to medicate it with insufflations of antiseptic powder. This should be specially pulverized and thrown in so as to come in contact with all the mucous lining. In my hands, nothing has been so successful as boracic acid, and iodol. The advantage of using the powder is that it will remain in contact longer than liquid. The opening should be closed immediately after treatment to prevent the saliva or other foreign substance entering the antrum from the mouth. During the early treatments the patient should be seen every day to prevent the accumulation of pus. Where this is impossible, the patient should be instructed and provided with necessary material to open, irrigate and medicate, at least every day and should be seen, at least, twice a week. In addition to this treatment, the administration of mild saline cathartics will be of great assistance. The length of time required to effect a cure will depend entirely on the case in hand.

When the teeth are in place and can be restored to usefulness, it is best to make an opening between the palatal roots of the first and second molars, extending toward the palate in order to get the size required, and proceed as just described.

There are many oral surgeons who successfully treat these affections through the nasal or facial wall. The objection to this mode of procedure lies in the fact of imperfect drainage, but, by frequent irrigation, this can be overcome, and, when to do differently, would sacrifice a useful tooth, I believe it the only justifiable way.

When the cause of antral disease lies within the nose, that cause must be removed, the natural opening enlarged so as to admit of ready cleansing and treating. In a case of tumor or necrosed bone within the antrum, an opening must be made sufficiently large to enable it to be removed entirely. Many times it is necessary to remove much of the facial wall. This is done by carefully dissecting away the periosteum and cutting away the bone with a large bur or chisel. After removing the tumor or necrosed bone the cavity should be rendered antiseptic and packed with wax to preserve the contour of the features. The wax is trimmed from day to day as granulations are thrown out. A cancer originating in the antrum, begins without pain or swelling and by the time the patient suffers any annoyance, it will have undermined the walls, and our only safety lies in removing the entire upper jaw, and, in most cases, even this will not be sufficient to stay its ravages.

The fourth class of antral affections are those resulting from systematic disturbances; such as colds, furuncular epidemics, scurvy, syphilis, &c.; and treatment, to be successful, must be from a constitutional standpoint. It is rare that these produce a degree of annoyance calling for local treatment, but when they do, treatment will not be very different from that already indicated. Syphilis sometimes progresses so as to baffle all medical treatment, and, in order to effect a cure, it may be necessary to remove the entire maxilla, and even this may only prove to be an aggravation, and its ravages only cease when the sufferer is relieved by death.

A word with regard to tumors as found in the antrum and I am done. There are a variety of tumors found in the antrum, ranging all the way from a common cyst to an osteoma and their diagnosis while not differing materially from that of the aforenamed disturbances are much more difficult. It requires much experience and care to be able to differentiate the kinds of tumors and when there is any doubt the microscope should be brought into use.

An intelligent treatment cannot be given unless we be very familar with the case we are dealing with. In the ordinary antral cystoma a peculiar semifluid will be readily detected. They may originate from dental irritation and begin by a slight inflammation and grow until the antral walls are absorbed, the features distorted and yet produce little or no pain. The treatment consists in removing the contents and using stimulating antiseptic lotions.

The solid benign tumors that occur in the antrum are of three kinds, viz., fibrous, cartilagenous and bony. The symtoms of their presence are quite similar to those of all other growths and give use to varying deformities according to their exact location. They occasionally grow into the nose producing epistaxis (when they are often mistaken for nasal polypi.) They more frequently grow into the mouth, eye or pharynx, where they seem to be much less harmful than other forms. If they are thoroughly extirpated a cure will be easily effected.

There are two forms of *malignant* growths found in the antrum, most frequently; one, a kind of sarcoma, the other carcinoma. It must be borne in mind that a sarcoma is a growth having its origin in the connective tissue, and, that this connective tissue is found in all parts of the body. It is contained in the canaliculi of bone, so that you can readily understand why we have this form, which is known as osteo-sarcoma, occurring in the mouth and antrum. This form as occurs in the antrum is usually malignant, and the most thorough removal of the tumor and adjacent bone will not always effect a cure.

Carcinoma is a growth beginning in the epithelium, it progresses very rapidly and is accompanied by an ulcerative process which destroys both bone and soft tissue as it spreads in all directions and unless taken very early all treatments, either surgical or medicinal, will prove futile and the patient will die from hæmorrhage or starvation.

PRESIDENT'S ANNUAL ADDRESS.*

By JOSEPH W. WASSALL, M. D., D. D. S.

In passing to my successor the insignia of office with which you honored me twelve months ago, it is my privilege to congratulate you in that the past year is in some respects the most notable period in the society's history.

Unquestionably the priciple cause of this can be traced to the mainspring of all the recent phenomenal activity in Chicago—the World's Columbian Exposition.

It is only natural that the Chicago spirit should show itself in all the internal organizations. We are but one of the little wheels within the big wheel and partaking of its resistless onward motion. Nevertheless there are contributory causes no less important, chief of which is the natural growth of the city. The first effect of the vast increase of population, and proportionate increase of dentists, was the organization of new societies, the immediate effect of which was to detract from the interest in the Mother Society.

When the city was much smaller—i. e. up to the beginning of this decade—the Chicago Dental Society fulfilled all the wants and performed all the functions both social and scientific of the profession. Every man knew intimately every other man, each found among its members his best friend, and here he presented every new thought and idea. This society was then the only crucible to which he brought for trial the results of his research and investigation. Now, other societies, clubs and associations have grown out of this or come into being by spontaneous generation until there are no less than eight in the city and fifteen in the state. The old Chicago Dental might have lost ground by the diversion of energy inseparable from the birth and early nourishment of the babies, but now that they are firmly established, attention reverts to the parent and new vigor and large accession of members is the result.

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*Read at the Annual Meeting of the Chicago Dental Society, April 4, 1893.

That process which we believe is still in operation, forces us into a new position in relation to the dental profession of Chicago to which she is becoming accustomed only after several years of nebulous torpidity and misunderstanding. It is now plain that the destiny of the Chicago Dental Society is to be the general meeting place and agency for organized action of the whole body of Chicago's reputable practitioners. It is the position occupied by the British Dental Association in being the mouthpiece of the whole profession of the United Kingdom, through which better legislation is obtained, wrongs are righted and the profession elevated. Here all parties and sects, faculties and factions should be one, bound together, working together in mutual interest for the general good.

In reviewing in brief the work of the past year the increase of average attendance and the large growth in membership is most noteworthy. The Secretary's report furnishes the figures which eloquently speak of an enlarged interest. A still greater effort should be made to enroll new names. Of the seven or eight hundred practitioners in the city, fully 90 per cent are available for membership. The reduction of the membership fee to $3.00 was a step in the right direction, but, it should be still further lowered to $2.00.

It is gratifying to note an improvement in the scientific work of the Society both as to quality and number of papers, and in the amount of time devoted to discussion. There were read in the nine meetings of the year fifteen papers as follows:

MAY.

1. "Facial Neuralgia," - - - - A. W. Harlan
2. "Pulpitis and Pulp Capping," - - - I. A. Freeman

JUNE.

3. "Tobacco," - - - - - - L. L. Davis

JULY.

4. "Filling with Crystal Gold on the surface of Amalgam," - - - - - - - E. A. Royce

OCTOBER.

5. "Filling Teeth with Gold," - - - H. A. Costner

NOVEMBER.

6. "Hypertrophy of the Mucous Membrane of the Mouth," - - - - - - - Louis Ottofy
7. "Ulitis," - - - - - - - - Thos. L. Gilmer

DECEMBER.

8. "Partial Dentures," - - - E. M. S. Fernandez
9. "Practical Regulation of Teeth," - - A. E. Matteson

JANUARY.

10. "The Differential Diagnosis of Tumors," - - - - - - - - - - H. H. Schuhmann
11. "Pain, its Pathology and Remedy" - - C. P. Pruyn

FEBRUARY.

12. "Treatment of Deciduous Teeth and the First Permanent Molars," - - - - D. M. Gallie
13. "Expansion of the Arch," - - - - C. S. Case

MARCH.

14. "Manual Training—a Necessity for the Future Dentist," - - - - - - D. M. Cattell
15. "Hygiene," as relating to the Dentist Himself, - - - - - - - - Garrett Newkirk

In addition the Committee on appliances have introduced very instructive features. The work of this committee should be developed and given greater prominence upon our programmes. There is an unquestionable benefit to be derived from the actual seeing or handling of new instruments or specimens not to be obtained in any other way. Is it not possible as was done in one instance, as is often done in medical societies, to have patients sometimes brought before the society? This is a practice which might be encouraged with great benefit and result in giving an added attractiveness to our meetings.

Those who have watched the progress of the society do not need to hear me say that all this shows a better development in the intellectual life and a broadening of scientific knowledge among us. It sweeps aside the suspicion of improbability to the often repeated statement, that dentists are at last becoming scholarly and that their calling may some day be worthy to be classed among the learned professions.

This implies that the qualifications of men about to enter our colleges shall be very materially raised, that those in practice shall avail themselves of every facility to gain theoretical and technical knowledge from every source in the society, in the clinic, periodical literature, books, practitioners' courses, university extension, and above all in the cultivation of a habit hinted at by Dr. Crouse in a recent meeting, of making an earnest philosophical and analytical study of each case coming into the care day by day. If there is one piece of advice more I can give before leaving my post, it is to urge a more thoughtful attitude to each case—to make a study of each case presenting in the gross so to speak before the first step is taken, and then to study every detail in the operation to completion—"Observe, Reflect, Record"—the results will be principles of practice which will be axiomatic. Their mere enunciation will demonstrate their soundness. Add to this a broadening of general culture and moral uprightness and that much desired goal will ultimately be ours.

But to return to a consideration of the years' work. While there is a very apparent general advance there seems to be almost a total lack of tangible results in any one line of treatment or operative procedure. There is no visible change in methods or discovery to record. Perhaps this society only partakes of the general poverty of results in the realms of scientific investigation and research inseparable from a period of great prosperity which prevails all over the country. The creation of new methods and the discovery of new facts in pathology and practice seems to be promoted by the leisure afforded by what is known in the commercial world as "hard times."

Of the three great congresses to be held in the present year the World's Columbian Dental Congress is of paramount importance to this society. Therefore the coming summer is fraught with great responsibilities for each of us who has the welfare of the profession at heart. Public attention will be attracted to dentistry as it has never been before. Let us see to it that every effort is made to take advantage of this exceptional opportunity to raise the reputation of the profession in the estimation of the public, and to inform them as to its humanitarian mission. But there is no necessity to charge the Chicago Dental Society with its duty. Not one will shrink from the extra burden of work involved, though to the extent of much personal sacrifice.

The possibility of our obtaining a permanent dental home, either alone or in connection with physicians and pharmacists has been a long cherished idea with many. A building owned and controlled by us which would at once afford meeting places, museum, library, reading room, restaurant and club privileges, might be maintained easily as conservative figures will show.

Death has taken from the profession of Chicago its most distinguished member, in the late lamented Dr. W. W. Allport.

While he quite recently withdrew from membership, his long connection with the society and the profession makes it our duty to join as a Society in the expression of regret at his death.

In vacating this chair to resume a place in the body of the meeting, I wish to express my hearty thanks to each individual for the forbearance and courtesy shown me during the past year. I give you my sincere gratitude for the many evidences of your respect and confidence.

PROCEEDINGS OF SOCIETIES.

CHICAGO DENTAL SOCIETY.

Regular meeting, March 7, 1893, Dr. J. W. Wassall, President, in the chair.

Dr. D. M. Cattell read a paper entitled "Manual Training a Necessity for the Future Dentist."

Dr. C. N. JOHNSON (opening the discussion): *Mr. President and Gentlemen*: The essayist has treated the subject of manual training in a broad light, but I do not propose to follow it in that line. The most I can say in regard to it is simply to give the practical experience I have had in college teaching before technic rooms were instituted, before we gave students any training in handicraft in the freshman year, and since then. In former times the student was set to work at patients after listening to lectures which he did not always comprehend. Under that system the most we had to do as examiners in the infirmary was to be constantly taking the instruments out of the students' hands and showing them how to use them. Patients in the infirmaries now are not imposed upon to the extent that they formerly were, because students to-day take a technic course and develop their manipulative skill in that direction. I therefore am a very strong advocate of this system of manual training. I think it should be followed out with greater detail than it is at the present day, and I hope Dr. Cattell or some other member will prepare a paper in the future on the minute details of this work. Since this subject is up for discussion, I will say that one of the greatest dilemmas we have to contend with now is not so much how to teach manipulation, as it is to impress upon the student the necessity for exercising judgment. You can take an ordinary student who has manipulative ability and tell him how to perform an operation and he will manipulate properly—he will work with his instruments to advantage—but the great difficulty in dental teaching to-day is to teach that student judgment about what to do in different cases. Unfortunately our manipulation does not run in certain definite lines. We have to change our method of manipulation in almost every operation we perform, and the great difficulty is to teach students when and where to use a certain instrument in a certain way, and when to use it in another way. The dilemma confronts me more than any other in my college teaching. I simply desire to go on record as a strong advocate of the method of manual training in dental colleges.

Dr. Garrett Newkirk: Dr. Cattell has given us a most interesting array of arguments from various authors on the subject of manual training. They are all good, and we might profitably prolong this discussion to a late hour, and so do away with the necessity for another paper.

I agree with one author quoted, as to the value of letting children begin early with the use of tools. I think my little boy was not more than two or three years old when we began to let him have tacks, a hammer, a dull knife, etc., and he amused himself with driving tacks and pulling them out again. He seldom, if ever, injured himself. He acquired manual dexterity in the use of tools very early, so that he is now accurate and careful in his manipulations. I have never thought of refusing him anything in the way of instruments which he wanted to use.

I wish to say that one of the most valuable acquisitions I ever made myself in manual training, was in the study of penmanship. In undertaking this the first thing I was taught to do was to take a fine pen and draw lines with a slow movement, straight, and regular curves right and left, and to keep at it until I had succeeded in either making an accurate curve or a straight line. I was not allowed to make rapid movements with the fingers until I had acquired perfect control of muscular action, and that took me some time.

The training, however, has been to me of inestimable benefit, giving me control of my fingers and of the point of an instrument. I do not think there is a better exercise for the prospective dentist than careful training in penmanship. There is nothing more delicate than to do fine work with a fine pen.

I also agree fully with the idea that there is too much of a disposition among dentists to ignore the laboratory, turning over our work to somebody else. I think we all would be better dentists if we did more of our own laboratory work. I think it is a drill that we can hardly afford to get along without.

Dr. A. W. Harlan: Why?

Dr. Newkirk: Because I believe any dentist, who has, for example, a tooth to crown can get that tooth crowned more satisfactorily to himself by preparing the root, adapting the band, and doing his own work in the laboratory. He will get a better adaptation and give better satisfaction than in turning over a portion of it to some one else. When he gets through it is all his work. That is my belief and experience.

Dr. A. W. Harlan: I do not know much about manual training myself, but I have listened to the reading of this paper with a good deal of interest, and while I am prepared to admit the absolute necessity of manual training for the future dentist, I take direct issue with Dr. Newkirk in the expressed idea that the dentist would be a better man if he did his own work in the laboratory, or that he must necessarily do the mechanical part of every operation prior to the adjustment of an appliance, a crown, or anything of the sort. I believe that there are some men who are destined to be better makers of crowns and bridges, artificial vela and regulating appliances than I am. Those men who develop this particular skill should receive the plaudits of their fellows. I do not claim to be, and I could not if I would be an artistic crown maker, because I do not make crowns. I get somebody else to do it. I can make a crown because I had a mechanical training in the laboratory extending over three years before I began the practice of dentistry. I can more satisfactorily employ my time in channels that are more congenial to me than making crowns, and where I can give better service to my patient than if I had to spend my time at the laboratory bench. The dentist should know how to do it and cultivate judgment. I do not want to make artificial teeth simply because I am not attracted to that branch of mechanical surgery. I highly esteem a man who can do the things that I cannot do, and when anybody asks me who can make a partial or complete denture, and who can make it most satisfactory, I always say Dr. So-and-So, or Dr. So-and-So, of this city or of New York. I think there is room for the development of that particular kind of skill. The practice of dentistry is so broad that there is no one man who can become equally proficient in every department and make himself an acknowledged authority on every specialty of practice and do it with his own hands, so that he will be able to utilize his time. Why should I try to evolve and make the elaborate regulating appliances that Dr. Case does? There would be no sense in it. I could neither get an income from it nor a reputation, because I would have to devote myself exclusively to it in order to do the work well. Every one should have the training necessary to make him a competent dentist mechanically in the beginning, then let him choose the particular branch of dentistry he desires to follow for himself. I am not going to a chiropodist to have a cataract removed from my eye. I am going to a man who is an expert ophthalmic surgeon, and who is able and willing to benefit me by his knowledge and experience in that direction. I do not believe that manual training began before men existed. I do not believe in kindergartens for children three or four years of age. I believe that God Almighty destined children to grow up as savages until they get stronger and firmer bodies and let their brains be educated afterward. That is the way I bring up my children.

The first idea of technical instruction in a dental college, aside from the mere desultory remarks and experiments of individual professors, had its birth in the dental school of Paris, in 1885, and in the winter of 1886, with Professor Leveet, I went through the rooms where students were engaged in the carving of ivory, in the fabrication of instruments, in the making of teeth, grinding of teeth, etc. When I came back to the United States, in February, 1886, I told Dr. Black I had seen something new ; but it seems that that man, whose mind is so broad and well educated in every department of science, had thought of the scheme of dental technics, before I presented this to him and shortly afterward he read a paper before this society. It was the first paper read in the whole world on that subject. In a discussion before the Illinois State Dental Society, in Galesburg, in 1876, a member of the dental profession of this State, in discussing a paper on dental education, said that he did not believe in a highly educated man for a dentist, that he believed in a man who could take a penknife and whittle a stick to a point. That was his idea of a man that was to be the future dentist. Then again, Norman W. Kingsley, before the class of the Ohio College of Dental Surgery, in the spring of 1883, delivered a few remarks, and said, "Gentlemen, you do not need to know much chemistry, or anatomy, surgery, materia medica, physiology, or anything like that if you are good mechanics." That is not so. We need to know all those things, and if we have a mechanical training coupled with this knowledge, then we are better dentists.

Dr. J. N. Crouse: There is a class of educators in this country at the present time that have gone crazy on manual training. They are going to cultivate the mind, memory and the logic of an individual by having him shove a plane or saw wood, or something requiring manual training. There is not a greater fallacy in the educational world, yet it has got to have its turn and come to that place where it will develop fully before people see it. Manual training is a first rate thing for people who have not mind and application enough to study their books and get their education in that way. A manual training school is an excellent place for a rich man to put his sons who cannot apply themselves to books, who rove from one school to another, until they are even ashamed to go to a manual training school, but here they may develop something that will be practical to them in the future.

What makes a dentist? Of course, it requires manipulative ability, dexterity of the fingers. It requires a great deal more than that. It requires energy, application and education of the mind. The dentist should be able to concentrate his energies on the particular thought in mind, and that will enable him to do his work logically and to become a philosopher. Many a dentist lacks the manipulative ability to accomplish a certain thing after he has studied it out. When difficult cases present themselves the dentist studies out a plan, but it is in its execution that the dental profession has been deficient in a great many cases, and that is why it takes such constant argument to keep up the idea that we are a learned profession.

When children are old enough, they should be taught to be active, and if they are properly trained they will learn to create with a purpose and to great advantage.

Dr. E. M. S. Fernandez said that his idea of a dental student was a young man who, first of all, had had a perfect manual training such as the essayist had alluded to. If he had a son he would not let him go into a shop before he was 15 or 16 years of age. He would not be in a hurry to have him graduate in dentistry at the age of 21; he would let him get old enough to know what he was doing. Dr. Fernandez then emphasized the importance of a knowledge of linear, mechanical and ornamental drawing as a factor in the education of the future dentist. Scarcely a day passed in the practice of dentistry that the dentist did not have some one of his tools get out of order. He should understand the appliances he uses and how to put them together, not that he needs to do it himself, but simply to know that the work is properly done.

Dr. Louis Ottofy: I desire to compliment the essayist on the admirable and carefully prepared paper that he has read before us this evening. I apprehend that in discussing manual training, some of the preceding speakers misunderstood the character of training that the essayist desires dental students to seek. He does not intend that the dental student should learn to use a plane, a hammer, or that he should perform other hard manual labor; but hat he should be subjected to that kind of manual training which is applied principally to the movements of the fingers, particularly the last two joints. He means the character of manual training which the first-class jeweler has had, who does fine work.

I was particularly interested in that part of the paper relating to the use of the left hand. Inasmuch as the paper dealt with the experiences of various men, I desire to relate my own personal experience. I was born left-handed. Whether there is such a thing as left-handedness or right-handedness is a mooted question. Certain it is that the majority of children naturally use the right hand, while some make use of the left hand. For the first few years of my life I was practically left-handed, and as parents are anxious that their children shall become as perfect as possible, I was punished for using the left hand; consequently when I was observed I would use the right hand, and when not seen I would use the left. As a result of that practice I now use both hands almost with equal facility. I remember well, when a little over five years of age, I had the pleasure of being a member of a kindergarten class, taught by the celebrated Dr. Froebel himself. I remember using my left hand, while the other children were using their right, and when he saw me, I immediately made use of the right hand; he said "I want you to use the left hand. All of the children will have to learn to use the left hand."

I stand on either side of the chair and use the right or left hand. Certain tools I can use better with one hand than the other. A pair of scissors I use best with the right hand; a hammer best with the left hand. A chisel, or an instrument for filling or excavating a cavity, I can use equally well with either hand. It has been a source of a great deal of comfort to me in prolonged operations to be able to stand on either side of the patient.

The subject was mentioned by the essayist of persons being able to write with both hands. Accidentally two or three weeks ago I found that I could do so. I wrote from the center with both hands running away from the body. The signature I made with the left hand was identically the same as that made with the right. I shall endeavor to teach my child to use the left as well as the right hand. This may be of advantage should he choose a profession like ours. If it were possible, I am certain it would be of great advantage to tie the right hand of dental students, so that for a certain length of time they would be compelled to learn manipulations with the left hand.

Dr. Newkirk read a paper on hygiene as relating to the dentist himself. Dr. T. L. Gilmer (opening the discussion).

Mr. President:—I am told that one reason why I was selected at the last moment, when it was found that Dr. Cushing could not be present, to open the discussion on this subject, was, that I am supposed to have had a hard fight for sufficient health to carry on my practice, overworking as I have for so many years. That I am not more seriously injured by it, I attribute partly,to the fact that I was brought up on a farm, and early inured to hard outdoor labor, thereby fitting myself for a heavy draft on my physical strength in after life.

The essayist mentioned Hygeia as the daughter of Æsculapius and thought there was an inappropriateness in her being the younger, as health should precede medicine. In Greek mythology the words wife and daughter are sometimes used synonymously; if so, in this case, the difficulty may be explained by supposing the wife to be the elder. I fully agree with Dr. Newkirk regarding the need of rest, but would not attach so much importance to the kind he mentioned, as to less frequent rests of longer duration, say, occasional rests of one or more weeks as may be practicable, and involving a more complete change for the entire man. It is well, also, to take some thought as to the position of the body while at the chair, to avoid an unnecessary expenditure of strength. It is impossible at all times to maintain an entirely erect position while operating, still we may do better than we some times do, if we try. Much of our work may be quite as well done while sitting, which, of course, saves fatigue; and just here I would suggest, in order to lighten the burden of the dentist, the disuse of the burring engine that must be operated with the foot. At the present time any one may employ electricity as motive power. Certainly it is beneficial to the eyes, as was suggested, to frequently look away from the work, be it at landscape or brick wall.

Cleanliness of the office, including thorough ventilation, too, is a matter of prime importance, and I am surprised that the essayist did not mention these points. A menace to the health of dentists is lack of the right kind of exercise. Bowling is good, bringing into action as it does, so many different parts of the body, and is preferable to exercise taken merely for the purpose of exercise. The German method of bowling is better than the American, as with it each alternate frame is bowled with the left hand thereby equally exercising both sides of the body.

Dr. C. N. Johnson: There are one or two points that I would like to mention briefly. Dr. Newkirk spoke of the great concentration of the muscular system in holding the point of an instrument in one place. I should like to ask how long he holds the point of an instrument in any one place? I get considerable physical exercise out of my operating, especially exercise of the upper extremities.

In regard to the different positions we assume at the chair, they are undoubtedly unhealthful; but if the dentist selects the position that gives him most perfect ease at the chair, he does not at all times do the most perfect work. He has got to assume unnatural positions. It is one of the necessities of the operator, and when I see these pictures illustrating the proper position to take at the chair, I often recognize attitudes which preclude the possibility of doing good work.

Another point: I am a firm believer in work. When gentlemen cry against work as being unhealthy, I take issue with them. I do not believe that hard work very often hurts anybody. There are undoubtedly cases where overwork has ruined the health of a man, but where there is one case of hard work that has hurt a man, there are ten cases where the harm has not resulted from it, but from something else. Usually it is worry instead of work. I work as many hours a day as anybody, and I am as healthy now as I have ever been. It is true, I diversify my work. The work I do in the evening is entirely different from that done during the day.

Dr. Newkirk also says, that in driving a horse we get very little, if any, exercise of the upper extremities. That depends upon the kind of horse one drives. I have a horse that will give any one who drives him a good deal of exercise of the upper extremities.

Dr. Harlan: I wish some gentleman who is devoted to hunting and fishing would say something about the delights of that kind of exercise. I wish to say that one of the best things a dentist can do who is shut up in an office all day, is to go fishing. If he does not care for fishing, let him go hunting. Dr. Newkirk spoke of boating. The mere exercise of rowing, with no object in view, has no pleasures for me. I do not care to row with another fellow to see if I can beat him. One can take a boatride and fish at the same time. A pretty good exercise is to carry an eight or ten pound gun and occasionally change position. If you do not want to do that, take a six pounder, and the exercise of carrying it and walking through the woods, breathing the pure air of Northern Indiana in the Calumet region, will be very beneficial to you. It is something that ought to appeal to every dentist here. Again, I like to stretch out in a chair almost my full length and look at the sky and Lake Michigan for a short time. I am serious about this subject, because dentists stay in their offices too much. I like to read; I like to drive after standing all day. I like to drive a horse so spirited that I have got to hold the lines. I want him to go from the time he starts until I get home. I have an object in view. The mere matter of going out riding with the expectation of exercising the horse has no pleasure for me; it is to exercise myself, and the horse is an instrument.

Dr. J. G. Reid substantiated what Dr. Harlan had said. He favored boating, fishing, hunting, and particularly bowling as forms of exercise. The latter afforded excellent amusement as well as exercise, and all the principal muscles of the body were brought into play.

Dr. L. L. Davis said his favorite forms of recreation and exercise were fishing and hunting. Out-of-door sports were the kind of exercises a dentist needed after being in his office all the day. There were a number of shooting and fishing clubs in close proximity to Chicago that dentists could join.

Dr. J. E. Hinkins said he did not see how any dentist could stay in his office week in and week out and do justice to both his patients and himself without seeking recreation and exercise of some sort and seeing the beauties of nature. He would advise every dentist to take up some form of outdoor sport, as it made him a better man both physically and mentally.

Dr. Newkirk (closing the discussion): In reply to Dr. Gilmer's criticism concerning the points I left out, I will say that I could not go over the whole subject of hygiene generally in one paper. I think I made the statement clear, that the exercise of other muscles, nerves, and cerebral centers, not actively engaged during the day in dental practice, was rest to them.

Dr. Johnson misunderstood me in regard to the strained position in holding the point of an instrument. What I meant was this, that in operating we necessarily must hold the point of an instrument under control. Although we move it, we have to absolutely control it, and in so doing we must hold the body from foot to head and hand in a controlled position.

Those of you who use the foot engine get an interference with this control. You cannot move the treadle with the foot, without communicating an impulse to your fingers. One of the great benefits to be derived from the electric motor is that the force is independent of the body, and does not affect its movements or position.

You have simply to control the instrument. I have been using the electric engine for over two years, having been forced to get a motor because of a severe cramp in the flexor muscles of my right leg. I never suffered a more severe pain in my life than I did from this, which was something like "writer's" cramp. If I had to go back to the treadle engine, I should be tempted to quit practice.

THE DENTAL REVIEW.

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EDITOR: A. W. HARLAN, M. D., D. D. S.

ASSOCIATE EDITORS:

C. N. JOHNSON, L. D. S., D. D. S. T. L. GILMER, M. D., D. D. S.

REMARKS ON DR. METCALF'S LETTER.

Dr. Metcalf in his very interesting letter takes the writer to task for condemning a practice proposed by our very well known transatlantic confrère that in its complete consideration is, to say the least, startling. It does not seem to matter much to Dr. Metcalf that a portion of the destroyed pulp is left in the root of a tooth, as he remarks that nature can take care of the remnant if it is hermetically sealed. What preservative property "cobalt" may possess now that it did not in former years is hard to tell. Dr. Metcalf seem to think that the writer has never tried the method. In a practice extending over a quarter of a century he has tried many innovations and last of them all the Herbst procedure. What does it resolve itself into? When scanned closely it is seen to consist of an operation for avoiding the filling of a root, by leaving a portion of the pulp in the root soaked with corrosive sublimate, and sealed with burnished tin, what therapeutic effect a 1 to 1000 sublimate solution will have on a dead pulp remains to be seen, as sufficient time has not elapsed since the method was first practiced by Herbst to discover. Success can hardly be looked for in five years. The object of filling a root is to prevent future trouble for a lifetime. The writer has seen many teeth after the roots had been filled from twenty to thirty years absolutely quiet and painless to their possessor—no abscess or tenderness to pressure. Dr. Metcalf's own case proves nothing. He says he has been in practice 53 years, therefore he must be 70 years of age and upward. What is the condition of the pulp of a tooth in a man's mouth at that age? Generally it has receded and is almost free from sensitiveness and the removal of a portion still remaining would count for little. Abscesses do not form easily in the mouths of old men and women for the reason that very often the apices of the roots are encysted even though the pulp is alive.

An examination of this method does not stamp it as one to be practiced with impunity by the old or the young, as it is not positive in the expected results. Root filling under antiseptic precautions is positive, successful and nothing is left to chance. The Herbst method is nearly all chance, no certainty about it, has nothing in its favor except as a labor saver of very doubtful utility. We will continue to destroy pulps and remove them rather than build golden nuggets on such an insecure foundation, no mummies under fillings for the editor of the DENTAL REVIEW if he knows it.

DENTISTRY IN FRANCE.

Since the passage of the law regulating the practice of dentistry in France, M. Magitot has communicated his dictum which is that the teaching of dental students now satisfactorily done by the two established schools should be supervised by the state. This would mean the organization of six or seven dental departments in France and the dismemberment of the two schools now so well installed. How much better it would be for the state to absorb the present teaching material and make two departments in Paris, in the *Ecole de Medecine* or Sorbonne or only one. The ideal is hard to realize and from the incessant labors of the band of workers in France to-day the practice of dentistry is far in advance of what it would have been if the theories of medical men practicing dentistry had been carried out, viz: only to allow *docteurs en medecine* to practice. As it is now there are a dozen competent dentists in France to one existing before 1880, due to the work of the professors in the Rue d' l'Abbaye and the Rue Rochechonart. We believe in giving them encouragement and hope their plans will be well considered before anything shall be done in haste that may cause a set back to dental education in France. The world is too large now for one or two men to appear as dictators and from the outset we have watched the work in France with the liveliest interest, with the earnest hope that dental surgery would rank on the same plane as medecine, theology and the law. This hope is about to be realized now and it devolves on the shoulders of the earnest teachers in the Institute Odontotechnique and the École dentaire de Paris to concentrate their efforts in the direction of progress in education and professional liberty.

SOCIETIES AND AUTHORS.

Before this issue of the DENTAL REVIEW makes its appearance many of the well-known State dental societies will have completed their labors for the year, that is the clinics and demonstrations will have been done and witnessed by all interested. The papers of course sooner or later will appear in print. Secretaries of societies have the privilege of brushing up the work of their confrères. Seldom do they do it however. In the acquiring of experience as an editor the writer often feels sorry to look at the incomplete manuscript of many authors and its utter want of fitness to enter the printing office. Often the name and address of the author is lacking and unless the editor has a programme of the particular meeting has to wait until the Secretary can be written to. All this takes time and unnecessary labor. Few if any of the papers presented nowadays have enough labor spent on them before the author goes to the meeting. The fearful and wonderful corrections that are made constitute a new essay in many instances. The plan of presenting a paper to a society one or two months before the opening of the session would be productive of much good if rigorously carried out. To preface a paper with an apology for its being hastily written when the author has had a year's previous notice, is in poor taste and usually the author should be asked to deny himself the pleasure of inflicting his audience with such an article. We do not pose as the writer of model papers but we think we know a good one when it is published or after having heard it read. The author of a paper should have something to say, believe in his subject, and think that the world will not be satisfied until he says it. If his knowledge of some of the collateral subjects, germane to the paper, is incomplete he must acquire more the best he can. After his materials are all ready the time to compose must be chosen to arrange the matter in such a manner as will be most convincing to the audience. A subject should be selected as a rule, that can be handled in one paper of not longer than ten to fourteen pages of printed matter the size of this journal and which will not consume more than forty minutes in the delivery of it to an audience. After the paper is written it is a good plan occasionally to destroy it and rewrite it.

ETHICS DENTAL AND MEDICAL.

From a squib in the *Dental Tribune* entitled "Let down the bars" or take them down, the reader would get the idea that since the establishment of a weekly dental journal we must necessarily all go to the demnition bow-wows. Codes of ethics are not intended for those who observe the Golden Rule but for the ones who have an itching for notoriety, or some other form of itching more or less incurable, which it will take a newspaper article to check. It may be that a farce is being enacted in Minneapolis or some other city; if so let the dentists or doctors be the players and audience also. It is not our fight except on well-defined rules. These may be briefly stated as follows: As a matter of news, any journal has the right to describe a college building and its equipment, the method of teaching and give the names of the teachers. It is in very bad taste to print their pictures, or give snap shots of groups, or give any of the personal history of the teachers, unless such teachers by their age, long service and general professional reputation are entitled to such distinction. This would not be considered advertising, personal advertising, paid advertising. It is a growing custom to name and illustrate the officers of societies in this country when a society meets in a city large enough to support a daily paper with the ability to do such work. No one would think for a moment that the officers of a scientific society could hope to gain any reputation in such a manner, especially when away from their accustomed places of abode. The pernicious forms of advertising are the paid for portraits in histories of cities, towns and illustrated journals where not an attempt is made to even page the sheet or leaf on which is pictured the celebrity that faces you. Denial that such illustration is advertising, only adds to the degradation. No professional man with the desire to appear well before his fellows can consent for a moment to become the target for *charitably* disposed confrères. The methods of trial before dental societies for alleged violation of the code of ethics are not always the wisest. Too long a lapse of time is allowed before the inquiry begins. The one who is charged with violation of a code should be suspended regularly and at once, then a dispassionate course can be outlined, and no personal spite or ill feeling should be allowed to influence or prejudge the case. The influx of cheap young men into the profession, the establishment of shops and infirmaries in cities that are presided over by specialists and pseudo-dentists and the encouragement that such persons receive from low grade dental societies after the advertiser and his assistants have secured a foothold in a community is largely responsible for the lack of ethical conduct of those who live constantly on the borderland of quackery. They seize every opportunity to parade themselves before the public, in many ways that it is not necessary to particularize.

It does not follow that because a man is a dentist or doctor that he should not also be a good citizen, that he should not be a member of a school board, library board, a member of the legislature, congress, the senate, or indeed that he should not aspire to higher offices than these under a republican form of government. A dentist may, without parading the fact that he is a dentist, serve as a magistrate, Sunday school superintendent or in any other honorable capacity; but he should always remember that his public appearances are those of the citizen not the professor. The public care little that a dentist has invented a pair of forceps or that he has set diamonds in the teeth of some foolish man or woman, what it cares for most is sobriety, capacity, honesty, and attention to the duties of life and he who fulfills the expectations of the public will be amply recompensed.

A Word to the Weary.

We have a word for the ear of those young men—and old—who feel themselves placed at a disadvantage by living up to the code of ethics, while they are brought into competition with advertising dentists who, by a blare of trumpets, draw public attention to themselves, and for the time appear to be securing all the practice. We are aware that it is an exceedingly trying experience for a young man to open an office in a certain locality, and have pitted against him within hailing distance, a man advertising "Painless dentistry," "Teeth without plates," "Best sets, $8," etc., and to see people going into the advertiser's office by the dozen, perhaps, while he is sitting patiently—or impatiently—waiting for practice. It requires a laudable degree of courage for a young man to go through an ordeal of this kind, and not find himself tinctured with a desire to do as he sees his neighbor doing.

But there are two sides to this question. The young man must not always be carried away with the glare and glitter of his opponent's surroundings. Things are not always what they appear to be, and while a full reception room may argue occupation for the advertiser, it does not always proves that he has a lucrative practice. Flaming advertisements draw to an institution a large per cent of that undesirable class of people known as "shoppers." They call upon the advertiser and take up his time in unprofitable discussion and arguments, and often leave his office without paying him a dollar. They get a list of his fees for the sole purpose of submitting it to other dentists as a leverage to secure a good class of work for a small amount of money. They are in their hearts suspicious of the work done by the advertiser, and employ him only as a scarecrow to force the reputable practitioner into a small fee-bill.

The advertising dentist brings to his office people who, for the most part, are unappreciated and ignorant. He is harrassed by a thousand annoyances that the ethical man knows nothing about. He is obliged to do an immense amount of work for a little money if he lives up to the promises of his advertisement, and if he does not do this he is stigmatized as dishonest and soon loses patronage.

The advantage gained by advertising is at best a temporary one. Just so soon as the advertising stops, the patronage stops—sometimes it stops before. Ask any of the old advertisers if it pays as well to advertise to-day as it did years ago. People are becoming more enlightened in these matters.

We are not dealing in the slightest degree with the question as to whether it is right or wrong to advertise. We are not at this time setting ourselves up as a censor for any class of men. We are arguing the question merely from its utilitarian point of view, and we candidly believe that no young man can afford to cast his lot with advertisers.

While the ethical dentist may find his road a hard one in the beginning, the history of the profession is full of examples to prove that ultimately he will win. People whose patronage is worth having are better able to discriminate than the young man often gives them credit for, and if he has only the patience to persevere he may be assured that they will sooner or later discover his ability.

Select, among all of your acquaintances in the profession, those men who have accomplished the greatest results financially and otherwise, and see if they are not men who have subscribed to the code of ethics. Ask these men if, when they first began practice, they did not encounter the same difficulties you are encountering to-day. Mark well their answer. Some of them will tell you tales of hardship that will make you blush for your own impatience.

Permanent success in dentistry depends upon conscientious application, and no man need fear that his efforts will for long go unrewarded if he honestly does his best. A practice gained by correct methods, and fostered by discriminating judgment, will remain with a man as long as he wants a practice, while one gained merely by a blast of trumpets is likely to take wings as the sound of the trumpet dies away.

We are more than ever convinced of this by the remark of a man who all his professional life has been an advertiser. Said he to us in talking over the elements which go to make up the success of a professional man: "My advice to every young man entering a profession is to be thoroughly ethical in all things. I am emphatic in my belief now that this is the only sure road to success, and no one realizes my own mistake more than I do.'' This was from a man grown gray in practice, and ought to form a lesson for beginners.

Stand true to your principles and your principles will ultimately prove to be your best advertisement. C. N. J.

WORLD'S COLUMBIAN EXPOSITION OPEN.

The first day of May was a holiday in Chicago and throughout the State of Illinois on account of the opening of the Exposition. The President of the United States and members of his cabinet came on from Washington to formally declare the World's Fair open. The Governor of Illinois, and the Mayor of Chicago, with his municipal staff were all present, including the representatives of all foreign governments and many other notables. The weather was fair and not too cool for outdoor demonstrations. In the presence of the thousands who had come for the first day, at 12:20 P. M. the electric button was pushed by the President and the great engines moved, the fountains played, cannons were fired and every steam whistle on the grounds huzzaed the glad news that the celebration of the discovery of America by Columbus had begun. We can assure those of our readers who were not there at the opening that they have a great treat in store, and we earnestly advise those who intend to stay long enough to make a study of some of the exhibits to secure lodgings near the grounds, as the delay in getting to and fro will consume from one hour to an hour and a half daily if they should secure quarters on the North or West Sides of the City. Next month we will publish a list of reliable hotels and boarding houses in walking distance from the grounds. Until then, wait before writing to secure rooms.

DOMESTIC CORRESPONDENCE.

Letter from New York.

To the Editor of the Dental Review:

Dear Sir: The First District Society held their regular meeting at the Academy of Medicine on the evening of March 14th, with Dr. Edward C. Kirk, editor of the *Dental Cosmos*, as essayist of the evening. He read a paper, the subject of which was "The Question of Local Anæsthetic Nostrums," now so commonly advertised throughout the length and breadth of the land. He prefaced his paper by quoting section third, article second, from the code of ethics of the American Dental Association, in reference to the circulation or recommendation of nostrums, which clearly showed the moral sense of the profession was clearly antagonistic to the use of secret proprietary nostrums. In the beginning he said the discovery of cocaine was the starting point of the nostrums now so widely advertised throughout the country. He took no issue against patent medicines or drug preparations where the formula was known or was legitimate. The others were not, as the former were published, and the latter the property of the proprietor. It follows the consumer must always pay a high cost for the product.

He had found the drug value of an advertised $1.00 package not to cost over ten cents. During the year he had submitted some ten or more samples of unbroken packages bought in the open market of the most widely advertised nostrums to an eminent Philadelphia chemist, who had found nearly all to contain cocaine.

"Arophene," an advertised nostrum, was found to contain one per cent and a fraction of cocaine, hydrate of chloral, carbolic acid a trace, aristol and alcohol.

"Dorsenia," two per cent and a fraction of cocaine with alcohol.

"Lexington," three per cent and a fraction of cocaine with hydrate of chloral and alcohol.

"Thayer's," No. 1 and No. 2. "Dental Obtundents," of No. 2, two per cent of cocaine.

"Eureka," manufactured over in Jersey, over three per cent of cocaine, with carbolic acid.

"Dixon's," two per cent cocaine, and strange to say, "Barr's Anæsthetic" that sells for $1.50 per bottle (probably six drachms in measure), contained no cocaine, simply cloves, peppermint and alcohol. This shows how dangerous it is for a supposed educated professional man to use in his daily practice a nostrum he does not know the composition of. If he uses cocaine knowingly, his cabinet with chloride of ethyl, and other remedies is at hand ready to be of service. Very few statistics so far have been gathered regarding the physiological properties of this drug, and the eminent medical men of the country are not using it with the same recklessness of a few years ago. Dr. Kirk quoted two deaths occurring in two hundred administrations; the dose is nearly always uncertain on account of the temperamental idiosyncrasies of the patient. One case was reported of a man in the most robust health dying in four minutes under a four per cent injection. Other cases are of cocaine syncope, and many of its toxic effects show that it is a drug the use of which is attended with great danger and would make the dentist culpable in the eyes of the law, when using a drug preparation of whose composition he was ignorant. He closed by saying that of the samples so far examined all but one contained from two to five per cent of cocaine, and the known cost to manufacture was no more than fifteen cents per bottle—"what a commentary on gullible dentists."

Dr. Thayer, who was present, asked for the privilege of the floor, and said Dr. Kirk had approximated the formula of his obtundent, but denied ever saying his No. 2 had not contained cocaine, but had affirmed to the profession repeatedly that his No. 1 was guiltless of even a trace. He quoted from Westcott's English Pharmacopœia, of a druggist who had used twenty-three grains without any toxic effect, and of the use so far of cocaine in 868 ophthalmic, and 1,724 cases in dentistry. The consensus of opinion of those present Dr. E. W. Holmes, William Jarvie, W. W. Walker, E. O. Hill, F. C. Barlow, R. M. Sanger, and others was against its use in advertised nostrums. Dr. Kirk said he did not make an arraignment against cocaine, as he used it extensively in his practice, but was against it totally in nostrums in which the composition is not known. Dr. M. L. Rhein offered a resolution as coming from the First District Dental Society, that it was the ethical duty for the welfare of the public, that they condemn the use of any nostrum whatsoever, which was passed unanimously. In the incidents of office practice Dr. N. T. Shields asserted his ability to fill the buccal roots of the superior and inferior molars to the very apex in ninety-nine cases out of every one hundred, and even in the one hundredth case, he cleansed the pulp canals with Donaldson's broaches, and filled the end with gold for a short distance, then with amalgam, he offered to give a clinic before the society to prove his assertions. Whether the clinic committee saw him or not, we do not know, but the Jerseymen present booked him at once for their July meeting at Asbury Park. Dr. Rhein exhibited an atomizer with perpendicular and straight angles of small glass points, for throwing a vapor spray of pyrozone in the pockets of pyorrhœa alveolaris, also a small electric light fastened to a nickel-plated band to be worn in the center of the forehead, the incandescent light had an adjustable lens to throw a strong ray of light in the oral cavity, and still be out of the way of the operator.

A resolution was offered by Dr. W. W. Walker on the death of Dr. T. H. Burras, who died March 12th. The oldest living dentist in the State of New York, aged 81. The meeting then adjourned.

Dr. G. Lenox Curtis will read a paper before the Central Dental Association at Newark, N. J., April 17th, "On the value of a post graduate course." Dr. George Evans, of New York, and L. Ashley Faught, of Philadelphia, will discuss the same, quite a number of New York and Philadelphia dentists will be present to partake of the regular dinner and then listen to the paper.

NEW YORK.

THE HERBST METHOD OF TREATING PULPS.

56 W. THIRTY-FIFTH STREET, NEW YORK, March 8, 1893.

To Dr. A. W. Harlan.

DEAR SIR—I have just read your article on Herbst's method in the *Cosmos*; and as it appears to me you are under misapprehension as to the scope and significance of the method, I venture to give my view of it, in the hope that some good may result. I regret to see any one, and particularly one who occupies so distinguished a position as you do, and to whom so many young practitioners look for instruction and guidance, condemning in positive terms a new method on *Theory Alone*, particularly when that method has been held in *practice* for many years by intelligent and honest men. I do not call to mind during my fifty-three years of practice, that the advent of a new idea, from cohesive gold to rubber dam, from amalgam to engine bur, did not call for particular condemnation from the so-called conservatives of the profession on theoretical grounds alone. I objected to rubber dam without trial myself, on the ground that it would be difficult to apply, would absorb light, etc. If I understand the Herbst theory, and I have had some correspondence with the author of it, it does not contemplate the preservation of the life of the pulp in the canals as the *end* to be secured, nor at all important that it should be dead, but that the pulp remaining in the tooth, whether dead or alive, should be under conditions where nature may dispose of it, either by nourishing and keeping alive, or removing obnoxious elements. When we reach the occult we must stop. The dead pulp *goes*, (can you tell how?) I know by repeated observation, that nature takes care of it without so much as a pang or a shadow of a pang. I know by experience in my own mouth, an inferior cuspid having been under treatment nineteen months. In color it does not differ from the adjoining tooth. For two years I have treated every case of recent exposure by Herbst's most beneficient method. Not one case has failed or caused pain, so far as I know, though in one mouth *four molars* have been under observation for eighteen months. Dr. W. H. Metcalf, of New Haven, has treated scores of cases without a failure. Is Herbst's experience of years to go for nothing?

Now as to practice, I do not consider cobalt indispensable. Its virtue probably lies in the minute subdivision of the arsenic, rendering it more diffusible through the pulp. With a fair exposure and perfectly hermetical closure of the external cavity twelve hours is sufficient to insure the painless amputation of the entire pulp. Ordinarily I operate after twenty-four hours. Seldom have to wait two days. The cobalt I use is "cobaltite" $\mathrm{Co\,S_2 + Co\,As_2}$, and is of a blue gray color.

Enlarge the chamber with a clean bur so as to be certain of a clean surface in its remotest corners, keeping the bur always wet. Wash thoroughly with *hot water*. *Never dry the pulp chamber!* Syringe the cavity with merc. chl. 1-1000 and introduce the tin while full of this, and *rotate* a smooth ball until the metal is solid and every particle of moisture is driven out. I thought this could not be done till I tried it. Rubber dam is not used except, perhaps, to insure a perfect application of the cobalt, and to put in the final plug. One word more to this frightfully long story. *A "dead"* tooth, otherwise sound, may remain for years without causing trouble, and at last break out. Now is it not possible that nature is quite able to dispose of foreign matter in the canals, while the entire pulp would be too much for it to manage? An ivory plug or a catgut ligature will be absorbed under right conditions in the economy.

Now will you make the experiment until you have one failure? If so, and observe the above rules, you will have a great many successful cases on hand.

You say, "It will take five or more years to fully test it." Dr. Herbst's experience goes back much farther than that.

In the interest of truth and humanity, I know you will pardon this rambling scrawl and believe me.

Yours very truly,

John T. Metcalf.

Letter from Dr. J. J. R. Patrick.

The World's Columbian Dental Congress:

As the time approaches for the meeting of the congress, and as elaborate preparations have been made by the executive and other committees to make the congress a lasting credit to the dental profession of the United States, it becomes a duty on the part of the profession to second the efforts of the committees by attending the congress in full force.

No similar opportunity is likely to occur again, in which the ability of our profession can be seen and recognized by men of refinement and education from every portion of the civilized world. The attendance from abroad of the best representatives of our profession has already been guaranteed and all that is required to complete the labors of the committees is for the profession in the United States to rise to the level of the occasion presented.

The advantages conferred on every individual in attendance at such a congress are manifold; they enable those who are devoted to scientific research to compare and check their observations, and to assist, by the thoughts of many minds, the promotion of any inquiry undertaken.

The discussions which follow the reading of papers on memoirs brings forth information on the particular subject that would otherwise be lost to the profession.

When we consider the benefits that such a congress bestows upon its members, the fees for membership are cheap indeed; and no man in the profession who considers his own interest can afford to be an absentee. JOHN J. R. PATRICK.

AMERICAN DENTAL ASSOCIATION.

CHICAGO, April 17, 1893.

To the Editor of the Dental Review.

DEAR SIR:—Owing to a change in the time of meeting of the World's Columbian Dental Congress it seemed a necessity to make a change in the time of meeting of the American Dental Association, and at the request of both the officers of the American Dental Association and the World's Columbian Dental Congress, I communicated with the officers of the former and the vote was unanimous for changing the time of meeting of the American Dental Association.

Accordingly we give notice that the meeting of the American Dental Association will be held in Chicago, August 12, instead of August 15. By order of the Executive Committee.

J. N. CROUSE, Chairman.

REVIEWS AND ABSTRACTS.

CLIFFORD'S MANUAL OF RECITATIONS IN MATERIA MEDICA, PHARMACY AND THERAPEUTICS, COMPILED FOR THE PRACTITIONER AND STUDENT.

By E. L. Clifford, D. D. S., Chicago, Ill. Published by the Kauffman Medical Publishing Co., and sold by H. D. Justi & Son and dealers generally. Price cloth $3.00.

The compiler is the professor of general materia medica and therapeutics in the American College of Dental Surgery in Chicago, and is presumably familiar with the needs of students. Part 1 consists of general definitions, classification of preparations weights and measures, abbreviations, prescription writing, dosage, administration of drugs and classification of remedies. Part II consists of the range of materia medica and therapeutics with an appendix, new remedies, posological table, poisons and their antidotes, index, etc. From the beginning the question and answer is the only method of drilling the student employed by the author. From some little experience gained by hard work on the rostrum the question and answer system will do very well for a freshman, but for the purpose of filling the receptivity of a student, experiments made directly where his eye can see, his finger feel and his nostrils smell or his tongue taste, has proven more satisfactory than recitation. For the former purpose the teaching of a freshman, we think the work will meet a gap, but for the senior, the junior or the practitioner we feel inclined to say that it is not the best or safest plan of getting accurate knowledge of either materia medica, pharmacy or therapeutics. We do not find fault with the subject-matter of the volume before us but the tediousness of trying to extract what you desire to know in a compact form, at a moment's notice, which can be done by consulting Wood, Bartholow, Farquharson, Brunton, Potter or or even Biddle, would deter us from using it as a practitioner's reference.

The collection of such a vast amount of material, laboriously selected by the author should not be thrown away, the book should be recast and the answers left practically as they are, and the questions eliminated entirely to make the useful information available. The reviewer questions the propriety of introducing proprietary drugs or remedies in a scientific compilation. What needed on the part of practitioners and students is not ready-made drugs or compounds but a desire should be instilled into them to have originality, which is entirely lacking, when a dentist's reliance in practice is upon the possession of three or four cheaply compounded, money making drugs which we forbear to mention as they have no place here.

An opportunity is still open for a text-book on materia medica and therapeutics, no quiz compend but a thoroughly digested work capable of being understood by a student, without the multiplication of formulæ, many of which are absolutely valueless—in Gorgas Dental Medicine for example—Two kinds of teaching may be made use of to a class of dental students, primary and advanced students must be drilled for principles, tables, solubilities, properties; and they must be taught, instructed perhaps is better, in their closing year at college. Works like the above are not suitable for the latter purpose, but this one would be if the reviewer's suggestions were adopted in part at least.

THE NEW DENTAL LAW IN WASHINGTON.—The following is a copy of the new law passed at the recent meeting at the State Legislature and now in effect: An act to Regulate the Practice of Dentistry in the State of Washington.

Be it enacted by the Legislature of the State of Washington:

SECTION 1. The members of the board of dental examiners to be appointed on or before the first Monday in February, 1894, for the term commencing the first Monday in March, 1894, shall be appointed and commissioned by the Governor for the following terms, to-wit: Two members of the said board for term of one year and three members of said board for the term of two years. All members of the said board appointed subsequent to the year 1894 for regular terms, shall be appointed for the term of two years and until their successors, respectfully, are appointed and qualified. In each odd-numbered year subsequent to the year 1894, two members of said board shall be appointed, and in each even-numbered year three members shall be appointed. Appointments for each year shall be made on or before the first Monday in February of such year, and the term of office of each such member so appointed shall begin on the first Monday of March of such year. At least two of said members of said board shall be selected from east of the summit of the Cascade mountains, and at least two from west of said summit. All vacancies occurring in said board of examiners may be filled by the Governor at any time. The board of dental examiners appointed under the act entitled, "An act to regulate the practice of dentistry and to protect the people against empiricism in relation thereto in the Territory of Washington," approved January 28, 1888, whose terms of office will expire on the first Monday of March, 1894, are hereby recognized and confirmed as the state board of dental examiners for the State of Washington, and said board shall continue to hold their offices until the expiration or their said terms, and to perform the duties of the same in accordance with the provisions of this act.

SEC. 2. Each member of said board hereinafter shall, before entering upon the duties of his office, take and subscribe an oath of affirmation in substantially the following form:

STATE OF WASHINGTON, COUNTY OF............, SS.

I,..........do solemnly swear or affirm that I will support the constitution and laws of the United States of America and of the State of Washington, and that I will faithfully perform the duties of the office of member of the board of dental examiners of the State of Washington. So help me God.

(Signed) ....

SEC. 3. The board shall choose one of its members President and one Secretary thereof, and it shall meet at least twice in each year, in May and November, or oftener, at the call of the President and Secretary. Thirty day's notice must be given of the time and place of the meeting of said board by publication of such notice in at least four newspapers of general circulation, published in the State of Washington, no two of such newspapers to be published in any one county. Three members of said board shall constitute a quorum, and the proceedings thereof shall, at all reasonable times, be open to the public inspection.

SEC. 4. Any person or persons who desire to begin the practice of dentistry in the State of Washington after the passage of this act shall file his or her name, together with an application for examination, with the Secretary of the state board of dental examiners, and at the time of making such application, shall pay to the Secretary of the board a fee of twenty-five dollars, and shall present him or herself at the first regular meeting thereafter of said board to undergo examination before that body. No person shall be eligible for such an examination unless he or she shall be of good moral character, and shall present to said board his or her diploma from some dental college in good standing, and shall give satisfactory evidence of his or her rightful possession of the same: *Provided*, That the said board may admit to examination such other persons of good moral character as shall give satisfactory evidence of having been engaged in the practice of dentistry ten years prior to the date of application for examination. Said board shall have the power to determine the good standing of any colleges from which such diplomas may be granted. Said examination shall be elementary and practical in character, but sufficiently thorough to test the fitness of the candidate to practice dentistry. It shall include, written in the English language, questions on the following subjects: Anatomy, physiology, chemistry, materia medica, therapeutics, metallurgy, histology, pathology, operative and surgical dentistry, and also demonstrations of their skill in operative and mechanical dentistry. All persons successfully passing such examinations shall be registered as licensed dentists in the board register as hereinafter provided, and also receive a certificate to be signed by the President and Secretary of said board and in substantially the following form to-wit:

This is to certify that..................is hereby licensed to practice dentistry in the State of Washington. This certificate must be filed for record in the office of the auditor of any county in which the party holding said certificate desires to practice, and it is unlawful for him (or her) to practice dentistry in any county in which said certificate is not filed for record.

Dated at..........this......day of............189..

....
President of said Board of Dental Examiners.

....
Secretary of said Board.

Sec. 5. The certificates in this act provided for shall entitle the holder thereof to practice dentistry in any county in the State of Washington: *Provided*, Such certificate shall first be filed for record in the office of the auditor of the county in which such holder desires to practice, and nothing herein contained shall be construed to permit any holder of any certificate to practice in any county of this State until such certificate shall have been first recorded in the office of the auditor of such county as herein provided: *Provided further*, That any such holder of a certificate may practice in more than one or any number of counties of this State on having such certificate recorded in each of such counties in which such holder desires to so practice. Said board of dental examiners shall, upon satisfactory proof of the loss of any certificate issued under the provisions of this act, issue a new certificate in place thereof. Any person failing to pass an examination may apply for a second examination free of charge.: *Provided*, That such application be made inside of one year.

Sec. 6. It shall be the duty of said board to meet in the city of Olympia in said State on the 2d day of May, 1893, and within ten days thereafter to transfer to a register, to be provided by them for that purpose, the name, residence, and place of business of each and every person who, at the time of the passage of this act, pursuant to said act of the legislature of the Territory of Washington, approved January 28, 1888, shall be qualified to practice dentistry in the State of Washington, and who shall then be registered on the books of the board. It shall be the duty of the Secretary of the said board to send to each person so registered prior to this act, without fee, a certificate similar in form to the other certificate provided for by this act, signed by the President and Secretary of said board of examiners, which certificate the holder thereof shall have recorded with the county auditor of the county in which the holder desires to practice, within ninety days from the date of said certificate.

Sec. 7. The county auditor of each county is required to record, in a special book to be kept by him for that purpose, all certificates issued under the provisions of this act, which may be presented to him for that purpose. After the record of any such certificate such auditor shall return the same with a certificate of its record to the party entitled to the same. Said auditor shall receive for such filing and record a fee of one dollar.

Sec. 8. Any person who as principle, agent, employer, employe, assistant, or in any manner whatever shall practice dentistry, or who for reward or hire shall do any act of dentistry without having filed for record and having recorded in the office of the auditor of the county wherein he shall so practice or do such act a certificate from said board of dental examiners entitling him to so practice, shall be deemed guilty of a misdemeanor, and, upon conviction, shall be fined in any sum not less than fifty dollars nor more than two hundred dollars, or be confined for any period not exceeding six months in the county jail, for each and every offense: *Provided*, The foregoing provisions of this section shall not, prior to the 2d day of July, A. D. 1893, apply to any person who shall be a duly licensed and practicing dentist in this state at the time of the passage of this act, and whose name shall be registered as such in the records of said board. After said 2d day of July, A. D. 1893, all the provisions of this section shall apply to all persons whomsoever. All fines recovered under this act shall be paid into the common school fund of the county in which conviction is had.

SEC. 9. In any prosecution for misdemeanor under the provisions of this act, the certificate of the county auditor of the county within which such misdemeanor is alleged to have been committed to the effect that there is no certificate of the board of dental examiners of this State on file in such auditor's office issued under the provisions of this act to the person accused of such misdemeanor, shall be sufficient proof *prima facia* that such person is not entitled to practice dentistry in such county.

SEC. 10. In order to provide the means for carrying out and maintaining the provisions of this act, the said board of examiners shall charge such persons applying to or appearing before them for examination for a certificate of qualification the fee hereinbefore provided for, which fee shall be in no case returned; and out of the funds coming into the possession of the board from the fees as charged, the sum of five dollars for each day actually engaged in the duties of their office, and all legitimate and necessary expenses incurred in attending to the duties of said board, shall be paid to each member of said board. Said board may also pay out of said fund all expenses which may be reasonably incurred by them in carrying out and maintaining the provisions of this act. Said board may, if deemed best by said board, with the consent of the prosecuting attorney of any county, employ and compensate out of said fund, special counsel to assist in the prosecution in the courts of said county and the supreme court, of any offense alleged to have been committed under the provisions of this act in such county. Said expenses shall be paid from the fees received by the board under the provisions of this act, and no part of the salary or expenses of said board shall ever be paid out of the State treasury. All moneys received in excess of salaries and expenses, as above provided for, shall be held by the Secretary of said board as a special fund for meeting the expenses of said board and carrying out the provisions of this act, he giving such bond as the board may from time to time direct; and said board shall make an annual report of its proceedings to the Governor on or before the fifteenth day of October of each year, together with an account of money's received and disbursed by them pursuant to this act.

SEC. 11. All persons shall be said to be practicing dentistry, within the meaning of this act, who shall, for a fee or salary or other reward, paid either to himself or to another person, for operation or parts of operations of any kind, treat diseases or lesions of the human teeth or jaws, or correct malpositions thereof. But nothing in this act contained shall be taken to apply to *bona fide* students of dentistry or one in pursuit of clinical advantages, under the direct supervision of a preceptor or licensed dentist in this state during the period of their enrollment in a dental college and attendance upon a regular uninterrupted course in such a college, nor to physicians in the regular discharge of their duties.

SEC. 12. It shall be the duty of the prosecuting attorney for each county to attend to the prosecution of all complaints made under this act, both upon the preliminary hearing in the justice court or before any magistrate before whom such complaint may be made, and also upon hearing in the court, either upon such complaint or upon any information or indictment filed against any person under this act: *Provided*, nothing in this act shall be construed to prevent the prosecution of any person for violation of this act upon information of the prosecuting attorney directly. The attorney general of this state shall appear in the supreme court and attend to the prosecution of all criminal cases arising under this act which may be appealed to said court or be taken to said court by writ of error.

SEC. 13. Sections 1, 3, 4, 5, 6, 7, 8, 9 and 10 of the act of the Territory of Washington entitled " An act to regulate the practice of dentistry and to protect the people against empiricism in relation thereto in the Territory of Washington," approved January 28, 1888, (said sections being sections 2854, 2856, 2857, 2858, 2859, 2860, 2861, 2862 and 2863 of the first volume of Hill's Statutes and Codes of Washington), are hereby repealed.

SEC. 14. All laws or parts of laws in conflict with the provisions of this act are hereby repealed.

SEC. 15. Whereas, no adequate law relative to the practice of dentistry exists, and a great embarrassment and inconvenience in relation thereto in this state will arise from delay of time when this act shall take effect, it is therefore declared that an emergency exists, and that this act shall take effect and be in force from and after the approval by the governor.

A PRACTICAL TREATISE ON ARTIFICIAL CROWN AND BRIDGE-WORK BY GEORGE EVANS, LECTURER ON CROWN AND BRIDGE-WORK IN THE BALTIMORE COLLEGE OF DENTAL SURGERY, ETC., ETC.—THIRD EDITION REVISED AND ENLARGED WITH 631 ILLUSTRATIONS, PHILADELPHIA, THE S. S. WHITE DENTAL MANUFACTURING COMPANY, 1893.

The rapid production of three editions of this book shows how essential this branch of dental prosthesis has become. While the natural evolution of dentistry has a tendency to make crown and bridge-work a rare necessity—as it already has the plate-denture—there is an unmistakable place in every man's practice for it. We have not yet taught even the more intelligent and affluent of our patients the lesson of hygiene and prevention of oral disease sufficiently well to protect them against the crown and the occasional grip of the forcep. There is therefore a large and widely spreading demand for knowledge upon the subject. The preface tells us that "Its teaching has been added as a special branch to the curriculum of every college in the United States." That this is eminently wise is now quite generally conceded by the conservatives who so blindly opposed it only a few years ago. And the most skeptical may be quickly converted into a wild enthusiast by contact with one well-selected case. In winning this quite general recognition Dr. Evans' treatise has been of the greatest influence.

This change of professional sentiment has been wrought since the appearance of the first edition in 1888.

The present edition consists of 346 pages—an increase of 50 pages over the second edition and 631 illustrations, an addition of 84. All the well-known methods of former editions and other textbooks are reproduced in encyclopædie fullness. Some new ideas are introduced, but much is left unsaid which would give greater usefulness to the work. To those who are learning for the first time how to make crowns and bridges every paragraph has value.

To those who are already proficient in its practice it contains scarcely a fresh suggestion. Might we propose a fourth edition virile with the practical ideas and experiences gleaned from a new school of men, (whose work was begun indeed, by his own invaluable words) but not emasculated by a tiresome repetition of obsolete systems in which the reader cannot but see a suspicion of advertising.

CATCHING'S COMPENDIUM OF PRACTICAL DENTISTRY for 1892. Compiled by B. H. Catching, D. D. S., Atlanta, Georgia. Price cloth, $2.50.

This work is an established visitor annually. No matter whether you are a subscriber to all the journals, it fills a place, its a sort of index rerum for the busy worker and it is well arranged for the idler. The wheat is sifted from the chaff in a manner that excites our admiration and respect for the skill of the editor and his uncommon good sense. We hope he will continue to do the work as well in the future as his labors in the past have been done. This work is like the *Review of Reviews* in some respects, full of just the things you want. Very often these compilations act as stimulants to the studiously inclined and in that way their influence is far-reaching and of permanent benefit. The list of journals and new books at the back of the volume is worth the price of the publication.

PAMPHLETS RECEIVED.

THE ANNALS OF THE PHILADELPHIA COUNTY DENTAL SOCIETY, 1893. Pp. 119.

This may be the beginning of a new dental journal in the Quaker city. Time will tell.

THE NEW REVIEW, October, 1892.

THE DEGENERATION OF HUMAN TEETH—ITS CAUSE AND CURE, by James Leon Williams, London, England. Probably the author is the J. L. Williams, we formerly knew as a member of the American Dental Association. The article is well written.

AGENDA MEDICO-CHIRURGICO-ODONTOJATRICA CON L'AGGIUNTA DELLE DOSI MASSIME DEI FARMACI PIU ATTIVI, pel Prof. Giuseppe Cali, Specialista delle malattie della bocca e dei denti

Docente privato di Odontojatria Membro dell' Accademia di Parigi Direttore della Riforma Dentistica decorato con medaglia di bronzo, qual benemerito della Pubblica Salute, Napoli, Stabil, Tipografico di Michele Gambella, via Bellini, 27 e 28, 1893.

PRACTICAL NOTES.

PREPARATION OF TEETH AND ROOTS FOR CROWNS AND BRIDGES.*

BY A. W. McCANDLESS, D. D. S., CHICAGO, ILL.

The old adage, "Well begun is half done," applies with double force to the subject in hand. Be the superstructure ever so beautiful and harmonious in outline, yet without the proper foundations the builders build in vain.

This is a proverb that is especially exemplified in Chicago, for if we trace the history of the erection of the massive structures all about us we learn that almost as much time and thought and care are exercised on the foundation as upon the remainder of the building. So then let us devote our attention for a few minutes to the requirements necessary for a sure and firm and durable base for a crown or bridge.

I am very happy that I live in an age when the forceps are being more and more relegated every day, that it isn't considered good practice to extract a tooth because it is badly decayed or broken down, or a root because it is abscessed, that I live in an age when the public take much more interest in the welfare and care of their teeth than ever before, that I live in an age when enlightened intelligent people confide themselves to us and thus invite our best and most conscientious efforts in their behalf and appreciate what we have done for them when we are through. Thus it behooves us to be up and doing to keep abreast of the times, to do our best and then our best will better grow. I rather expect that some things I say to-night will provoke adverse criticism, but if any new light may thus be thrown upon our views I shall feel repaid, for its the truth we are after and if by groping around in the dark the bright luster of truth shall dawn upon us with increased and bright effulgence because of the contrast, we will all be glad of the patient plodding, groping. The earnest seeker after truth is not content with leaving things as he finds them, but delves deeper and deeper until new visions meet his orbs and new thoughts repay his search and earnest work.

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*Read before the Odontographic Society, of Chicago.

I have allowed my thoughts to lead me in this strain because I wish to emphasize the necessity of patience, skill and thoroughness which virtues and attributes should predominate now if ever, for there is nothing in the whole category of our work where these characteristics should shine if not in the preparation of a root.

There has been considerable said lately about the Herbst method of amputating pulps, which shows to me that those who favor such a method of procedure have not that almost divine gift of patience developed in themselves as it should be. Dr. Herbst is reported by Dr. Boedecker to have said: "Oh, I have not time to fill roots of teeth."

To prepare a root for a crown, the first thing to be done is to get that root in a healthy condition and then *fill it full.*

It has been said so often, and is so selfevident, that it will scarcely bear repeating, that a band is no smaller than the largest part contained in that band that I simply mention it to illustrate the fact that the sides of a root must be parallel in order that a ferrule shall fit all parts within it equally well. In other words the part of the root nearer the apex must be as large as or larger than the part nearer the point of mastication.

To accomplish this it is well to remember that when stripped of its enamel the walls of a root or tooth are almost parallel, so that if you are provided with suitable instruments for removing the enamel and have the requisite skill, you are in a fair way toward having that root thoroughly prepared for a perfectly fitting band. Many instruments and devices have been made for the accomplishment of this purpose. Some are good, some indifferent and some bad, but I am not before you to-night to advocate any particular instrument or method of procedure, but simply to impress upon your minds if possible the necessity of thorough, painstaking, accurate work. So much for the preparation of roots for crowns, and now to teeth which are to be used as piers or abutments for bridges. The first question to be considered here is the devitalization of the pulp, which must be done *always.* This rule is so general as to admit of *no exception whatever.* Why? Because a tooth with a live pulp will not permit sufficient cutting down to insure thorough work. I know this to be true by an experience extending over a number of years, and the bridges I have attached to vital teeth are the only ones that have given my patients trouble and myself annoyance and chagrin, and I am free to acknowledge right here that the bands in those cases were not nearly as small as they should have been for a perfect adaptation. Why? Because the teeth became so sensitive the patient could not endure the pain of further cutting down.

Suppose for instance a tooth could be cut down sufficiently for a perfectly fitting band, (but remember it cannot) that tooth will be so sensitive to thermal changes that the patient will have no comfort whatever.

You who have been adapting crowns to vital teeth try this method and you will be surprised how much smaller the teeth will seem to grow.

It seems to me that teeth are smaller at the neck than before, and it's because I more nearly accomplish what I ought always to do than I ever did before.

To illustrate: I have a case now where I am attaching bicuspids to cuspid and first molar. Cemented the bridge to-day. The molar was a large bell-shaped tooth elongated in its socket. Absorption of the alveolus so extensive that I could place an instrument in the bifurcation of the roots; tooth so sensitive as to admit of almost no cutting at all, but after devitalizing that pulp and filling the roots I could just grind away on that tooth to my heart's content, and my patient, a man sixty-three years of age, just sitting there enjoying it, because he knew he was not to be hurt. The bicuspids are also missing on the opposite side, and when I finish the bridge that shall do service there, I think he will have something that will prolong his life.

In preparing a root for a porcelain faced crown I have been much pleased in the use of a little instrument devised by Dr. Taggart, who will open the discusion of this paper, and that is an ordinary fissure bur with a round shoulder soldered just far enough down to give required width of gold band. This is for the purpose of cutting through the alveolus on the proximal sides of the root, thus permitting the band, when made, to extend further up under the free margin of the gum, and when the crown is completed no gold whatever is in sight.

This may seem an unnecessarily painful operation, but it is not if a solution of cocaine is applied locally to the soft tissues surrounding.

It has been urged that such a method will cause the root to elongate. Gentlemen, don't believe it. The roots that elongate are the ones where the band is so much larger in diameter than the root it covers that inflammation supervenes.

Now I verily believe that the method here advocated is the only one that will give absolute comfort and satisfaction to your patient, and that will admit of the perfect health and cleanliness of the surrounding soft tissues, and in giving your patient something comfortable and useful as well, you compel his gratitude and at the same time what a pleasure you are to yourself when you can feel that *you* are satisfied that that work is well and thoroughly done.

DENTAL COLLEGE COMMENCEMENTS.

NORTHWESTERN UNIVERSITY DENTAL SCHOOL.

The graduating exercises of the Northwestern University Dental School were held on the afternoon of April 25, at Central Music Hall, Chicago,

Six students were graduated as follows:

Benjamin Merrill Ford,
Jared Michael Garman,
Charles Hazen Gale,
Murry Gordon Matteson,
Philip Albert Pyper,
Charles Arthur Templeton.

MEMORANDA.

Prof. Robert Koch, of Berlin, is in Chicago.

Dr. R. J. Patterson, the eminent neurologist is dead.

Dr. Rusti Forcepsi is in Chicago visiting the Exposition.

In using pyrozone be sure and keep it away from the fire.

Dr. M. E. Norton, of Chicago, died recently in Elgin, Ill.

Dr. B. L. Rhein is located at 7 Grosvenor St., W. London.

Dr. E. C. Moore, of Detroit, paid a flying visit to Chicago in April.

Dr. Chas. E. Blake, of San Franciso, has been in Chicago for some time.

The post office examiner in London compels the successful candidates for positions to have uselses teeth extracted.

Dr. W. St. George Elliott, of Washington, D. C., formerly of London, England, will remain in Chicago during the summer.

The *Schweizerische Vierteljahrschrift fur Zahnhiclkande* as a very complimentary notice of the Dental Congress in the March number.

The dentists of Indiana held a jubilee the last of March in the City of Indianapolis. There were more than one hundred present.

Sodium Fluoride the more it is used as a sterilizer, the more satisfactory it becomes. A saturated solution for instruments and broaches.

Prof. Paolo Mantegazza has been invited to lecture before the Owen Scientific Centre upon his arrival. Due notice of his lecture will be given.

The New York Medical Abstract for March, contains papers on pyrozone, by Drs. M. L. Rhein, Chas. B. Atkinson and R. Ottolengui, of New York.

Dr. M. M. Levett and Barrie, of Paris, have been appointed delegates to the congress, also M. Laurence, one of the professors at the *Institut Odontotechnique*, Paris.

A correspondent in *some country* says that a few of the tin gods should be melted and cast into commemorative medals to emphasize insular prejudice. Selah !

Dr. E. N. Harris, for so many years the Secretary of the American Academy of Dental Science, Boston, is no more. He died in Calais, Maine, about March 12, 1893.

Dr. Ambrose Laurence, once President of the American Dental Association, is dead. He was well known as the inventor or discoverer of the Laurence amalgam.

Mm. Chas. Godon and A. Ronnet have been designated by the French Government to visit the United States and attend the World's Columbian Dental Congress.

First District Dental Society State of New York officers were elected at the April meeting as follows: President, Wm. Carr; Vice President, John I. Hart; Secretary, B. C. Nash; Treasurer, K. C. Gibson

One-half ounce of lysol in sixteen ounces of water may be still further diluted to use as a mouth wash. The writer takes of this stock solution, six drachms to four ounces of water for washing scalers, exacavators, forceps, etc,

A NEW DENTAL COLLEGE.

A dental college will be started in the city of Tacoma, Washington, in September next. Trustees, W. E. Burkhart, C. W. Chamberlin and A. McCully.

Dr. Frank H. Gardiner says that the railroad rates for dentists will be announced soon from every point in the United States. It is hoped that rates on steamers will also be secured in time to let our friends abroad avail themselves of reductions.

The new Park Row station of the Michigan Central and Illinois Central railways (both roads lead to the exposition) is less than a mile from the Memorial Art Palace; the Columbia Dental Club is midway between the station and the art palace, facing east.

From the annual report of the President of the World's Columbian Exposition the enormous sum of $16,708,826.48 had been expended up to March 31st, 1893. It will require something like two or three millions of dollars to complete the payment of the whole installation.

The general fakirs as well as some of the special brood are beginning to swoop down on Chicago. The unsophisticated dentist should be on the lookout for adventurers of every description, or he will be likely to invest his money in some fad or other to his sorrow.

A new dental Journal is announced to appear on the Pacific slope, *The Pacific Coast Dentist.* Mr. Lawrence Frost is to be the editor and publisher. It is proposed to use only original matter, a problem of some difficulty if the matter is not paid for by the publisher. The influence and support of the Dental Department of the University of California is promised to the new journal.

DEAR SIR:—The annual meeting of the Michigan Dental Association which was to have been held at Ann Arbor, in June next, has been postponed till June, 1894. Will you kindly give notice in the next issue of your journal.

Yours truly,
J. WARD HOUSE, Secretary.

Any dentist in Illinois who is eligible to membership in the Dental Congress can become a member of the "Columbia Dental Club" by forwarding his application to the Secretary, Joseph W. Wassall, M. D., 208 Dearborn Ave. The club house will be opened regularly for members about the 20th of May, when there will be a general housewarming to which the profession in Chicago and adjacent vicinity are invited. By order of the Executive Committee.

CALIFORNIA STATE DENTAL ASSOCIATION.

The next annual meeting of the California State Dental Association will be held in San Francisco, Tuesday June, 13, 1893, continuing four days, at the rooms of the Dental Department of the University of California, corner of Taylor and Market Sts. All members of the profession are invited to be present.

W. Z. KING, President, 1001 Valencia St.
L. VAN ORDEN, Recording Sec'y., 14 Grant Ave.

DENTAL NOTE.

Stranger—"Where does that new dentist have his office?"

Policeman—"You mean the one who pulls teeth without pain?"

"Yes."

"Go right around the corner. You will have no trouble finding his office. You can hear his patients yell half a block away."—*Texas Siftings*,

FUNNY.—Recently an Englishman by birth wrote a panegyric on the rise and progress of dentistry in America, and lo and behold, an Englishman in England rises up in wrath and says that it is impossible for the English to visit or participate in a dental congress at Chicago, which we wish to remark is "funny." International relations are not to be trifled with in such a manner, none but the most illiberal could be brought to think of a matter of this kind in so serious a light. There were congregated in London, once upon a time, "three tailors in Tooley street" but they were not the *people* of England. Such childs play is neither dignified or edifying under the circumstances.

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CHICAGO DENTAL SOCIETY.

April 8th, 1893.

At the annual meeting of the Chicago Dental Society held Tuesday evening, April 4th, 1893, the following officers were elected for the ensuing year:

President, J. W. Wassall; first Vice President, J. H. Woolley; second Vice President, Garrett Newkirk; Recording Secretary, Geo. J. Dennis; Corresponding secretary, L. L. Davis; Treasurer, E. D. Swain; Librarian, J. J. Whaley; Board of Directors, Edmund Noyes, J. G. Reid, Geo. H. Cushing; Board of Censors, E. R. Carpenter, D. C. Bacon, H. W. Sale; *Geo. J. Dennis, Corresponding Sec'y.*

It will be interesting to our readers to know that the State dental law of California has been sustained by the Court. This law was enacted to prevent quack dentists from practicing in our State, and to insure a better education of our practicing dentists. Many incompetent men from the East, drawn here by our climate are now imposing on the public. The State Board of Dental Examiners, of which Dr. Jno. C. McCoy is the member from Southern California, gained their first case against an illegal or unlicensed dentist of Los Angeles last week. This case may be quickly followed by others, now that a precedent has been established, aud the incompetent dentist must either qualify himself to do scientific work or leave the State. Orange county is to be congratulated on having a member of the State Board of Dental Examiners with sufficient push and energy to lead the State in the enforcement of our dental laws.

Ohio College of Dental Surgery, fifteen graduates; University of Maryland, Dental Department, sixteen graduates: Baltimore College of Dental Surgery, twenty graduates; Kansas City Dental College, four graduates; Southern Medical College, Dental Department, eight graduates; Meharry Medical College, Dental Department, two graduates; Pennsylvania College of Dental Surgery, twenty-three graduates; Vanderbilt University, Dental Department, ten graduates; Alabama College of Dental Surgery, three graduates; Philadelphia Dental College, thirty graduates; New York College of Dentistry, forty-six graduates; Missouri Dental College, three graduates; United States Dental College, — graduates; Northwestern Colleges of Dental Surgery, — graduate; University of Tennessee, Dental Department, one graduate; Indiana Dental College, three graduates; Cincinnati College of Medicine and Surgery, —— graduates; Western Dental College, six graduates.

IOWA CITY, Iowa, April 10, 1893.

WORLD'S COLUMBIAN DENTAL CONGRESS.

SPECIAL NOTICE.

To the officers of Dental Societies in the United States:

GENTLEMEN:—The Committees on Membership and Registration of the World' Columbian Dental Congress will be saved much trouble and applicants for membership much vexation if the members of Dental Societies in good standing are furnished with credentials and certificates of membership so that they may be presented at the desk when intending members apply for their membership cards.

Advanced membership cards will be furnished on application to the Secretary of the Committee, or the Secretary-General when the membership fee ($10) accompanies the application.

A. O. Hunt, Sec'y of the Executive Committee,
Iowa City, Iowa.

A. W. Harlan, Sec'y General of the Congress,
No. 1000 Masonic Temple, Chicago, Ill.

NORTHERN OHIO DENTAL ASSOCIATION.

The Thirty-fourth Annual Meeting of the Northern Ohio Dental Association was held in the council chamber at Akron, Ohio, May 9, 10 and 11, 1893. The following programme was carried out:

1. The President's Address—"Landmarks."
2. "Chemistry of the Mouth," Geo. H. Wilson, Cleveland. Discussion opened by W. A. Siddall, Oberlin; J. W. Jungman, Cleveland.
3. "Artificial Crowns," D. A. Allen, Toledo. Discussion opened by Thos. H. Whiteside, Youngstown; J. E. Robinson, Cleveland.
4. "New Remedies and their Application," L. P. Bethel, Kent. Discussion opened by J. F. Dougherty, Canton; S. A. Pancoast, Ashtabula.
5. "Queries." Answered by F. S. Whitslar, Youngstown. All questions must be handed to the Corresponding Secretary before March 1, 1893.
6. "Popular Dental Education," L. L. Barber, Toledo. Discussion opened by L. W. Ballard, Alliance; H. G. Husted Oberlin.
7. "Non-Cohesive Gold and Tin," (Talk), Corydon Palmer, Warren.
8. "The Code of Ethics," W. T. Jackman, Cleveland. Discussion opened by W. P. Horton, Cleveland; A. J. Douds, Canton.
9. "Hard Deposits within the Pulp Cavity," S. B. Dewey, Cleveland. Discussion opened by C. R. Butler, Cleveland; F. H. Waldron, Canal Dover.
10. "Prosthetic Dentistry," J. F. Stephan, Cleveland. Discussion opened by F. D. Davis, Minerva; W. H. Fowler, Painesville.
11. "Anæsthetics," J. R. Owens, Cleveland. Discussion opened by J. F. Siddall, Oberlin; J. E. Phelps, Chagrin Falls.
12. (1.) "Is it a fact that the first permanent molar in particular, but also both the first and second molars are, as a rule, the first of the permanent set to decay; and does this occur in a majority of cases as early as from twelve to fifteen years? (2) If this be a fact, what is the cause and how can it best be prevented?" E. J. Wayne, Sandusky. Discussion opened by W. B. Connor, Akron; Theo. J. Phillips, Canton.

DENTISTS FORM AN ORGANIZATION—OFFICERS ARE AUTHORIZED TO APPLY FOR ARTICLES OF INCORPORATION.

An adjourned mass meeting of Chicago dentists was held in Orpheus Hall, Schiller building, last night, for the purpose of organizing the Dental Legal Association of Illinois. Chairman E. L. Clifford presided. At the last meeting, held February 15, the constitution and by-laws were adopted. The object of the association is to enforce the present dental law and to secure a new and better one. It will endeavor to secure the name of every dentist in the State for membership, so that there will be no faction fight. The officers elected last night will recommend to the Governor names for appointment on the State Dental Board of Examiners. The following officers were elected: President, W. A. Stevens; Vice President, E. L. Clifford; Secretary, L. L. Davis, No. 524 Van Buren street; Treasurer, F. W. Huxman. Nine Vice Presidents were also elected from Illinois towns, as follows: Dr. J. J. Jennelle, Cairo; Dr. J. G. Dickson, Carmi; E. C. Stone, Galesburg; L. W. Skidmore, Moline; F. H. McIntosh, Bloomington; W. C. Martin, Peoria; C. J. Tibbitts, Quincy; Grafton Monroe, Springfield; C. J. Underwood, Elgin; T. W. Beckwith, Sterling. The officers of the association were authorized to apply for articles of incorporation.

The French government has designated Profs. Charles Godon and A. Ronnet of the Dental School of Paris to visit the World's Columbian Congress of Dentists to be held here August 14. Dentists have also been appointed from the following countries: Peru, W. St George Elliott; Venezuela, M. V. Toledo; Holland, John E. Grevers; Honolulu, J. M. Whitney.

The Columbia Dental Club has been organized for the purpose of entertaining visiting dentists during the World's Fair. A club house has been secured at No. 300 Michigan Avenue, where the visitors will be received. The club already has 115 members. The incorporators are: Drs. Frank H. Gardiner, J. N. Crouse, J. W. Wassall, T. W. Brophy and A. W. Harlan. They are also the directors. A meeting will be held Monday, when officers will be elected.

OBITUARY.

RESOLUTIONS OF THE CHICAGO DENTAL CLUB IN MEMORY OF DR. W. W. ALLPORT.

Whereas, In view of the loss we have sustained by the decease of our friend and associate, Dr. W. W. Allport, and of the still greater loss sustained by those who were nearest and dearest to him; therefore, be it

Resolved, That Dr. Allport was a man of good principles, lofty in his ideas, conscientious in his dealings, strong in his purpose for right, and farsighted in the requirements of the profession, and that it is but a just tribute to the memory of the departed to say, that expressing our regret for his removal we, the members of the Chicago Dental Club, mourn for one, who was, in all respects, entitled to the regard and admiration of every one with whom he came in contact.

Resolved, That we sincerely condole with the family of the deceased on the dispensation with which it has pleased Divine Providence to afflict them, and commend them for consolation to Him who orders all things for the best and whose chastisements are administered in mercy.

Resolved, That this heartfelt testimonial of our sympathies and sorrow be forwarded to the family of our departed friend.

Committee, { L. P. Haskell,
E. S. Talbot,
C. N. Johnson.

FRED A. LEVY, D. D. S.

Born at Richmond, Va.; Died at Orange, March, 21st, 1893. At a special meeting of the N. J. State Dental Society the following memorial and resolutions on the death of Dr. Fred'k Arthur Levy were adopted:

WHEREAS:—In the death of our esteemed associate, Dr. Fred'k. A. Levy, the N. J. State Dental Society has lost one of its most worthy and honored members, full of generous impulses.

Kindly professional feeling was foremost with those who labored to advance the profession by filling its ranks with honorable and capable men. He was a devoted professional brother, sociable, kind and charitable to an eminent degree, Therefore be it resolved,

That we bow to the will of Almighty God, and yet desire to emphasize our grief in the death of our professional brother, and to bear testimony of his abilisies and self-sacrificing spirit, in the advancement of his profession, also,

Resolved, That a copy of these resolutions be spread upon the minutes of our society, and that a copy be sent to the dental journals for publication.

Signed,

Committee, W. F. HOLBROOK,
R. M. SANGER,
J. A. OSMUN.

THE

DENTAL REVIEW.

VOL. VII. CHICAGO, JUNE 15, 1893. No. 6

ORIGINAL COMMUNICATIONS.

ANCHORAGE OF PROXIMATE FILLINGS IN THE BICUSPIDS AND MOLARS.

BY G. V. BLACK, M. D., D. D. S., JACKSONVILLE, ILL.

In order to safely stand the test of usage a filling that is exposed to the strain of mastication must be able to support the entire force capable of being exerted in the closure of the mouth. The great mass of proximate fillings in the bicuspids and molars are in composite cavities, that is, proximate cavities that are also open to the occlusal surface, and are thus exposed upon one surface to the force of mastication. It is especially of this class that I now prosose to write. These fillings must be able to bear the entire strain exerted by the most forcible closure of the mouth. It may be said that the filling itself is not called upon to bear all of the strain of the closure of the jaws, but this relates only to the more ordinary usage of the teeth. At some time a bit of bone or other hard substance will be caught upon the filling itself and take the entire strain, and if its anchorage is insufficient it will be displaced.

The dental apparatus is indeed formed on this principle. Any one tooth or any part of a tooth is capable of taking all the strain that can be brought upon it by those teeth opposing it in the opposite jaw, or is capable of bearing all the strain that can be exerted by the muscles which close the mouth. Were this not so the sound teeth would be continually liable to fracture or displacement by bits of hard substances inadvertantly caught upon them in the act of mastication. It is on this principle that bridge work has become a success. When we make a bridge occupying the greater part of one side of the mouth and supported by a tooth at either end we find either one of these teeth supporting the entire strain brought upon the bridge. This could not be the case had each tooth not been primarily able to support the entire strain of the closure of the jaws.

What is this strain? I can, with my right hand, grip one hundred and twenty pounds, as measured by an apparatus designed for that purpose. With what force can I close my jaws? So far as I know, we have no apparatus for measuring the force of the bite and in the more scientific sense it remains an unknown factor. It must, however, be much greater than the grip of the hand and amounts to hundreds of pounds. Hans Block, of Dresden, Germany, in his papers on mastication in the *Dental Cosmos*, 1893, page 187, states that some accrobats can close the mouth with a force of five hundred pounds, and that ordinary persons can exert a force of about three hundred pounds. But these statements do not seem to be based upon accurate determinations. The force capable of being exerted is much greater upon the posterior teeth than upon the anterior. This is on account of their different relation to the muscles closing the mouth. We find therefore that the posterior teeth are stronger and more firmly implanted than the anterior teeth.

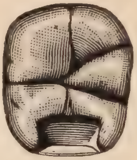

FIGURE 1.

FIG. 1. Lower first molar with mesio-occlusal cavity prepared to retain the filling by broad grooves cut in the buccal and lingual walls. These walls are too light—a common error. This and all similar cavities (in size) should be prepared by cutting a step or dove-tail into the occlusal surface as shown in Figures 3 and 4.

Again what is the strength of tooth material. We know that the sound tooth has ample strength to withstand the full strain of the muscles closing the mouth. But how much has it to spare, how much may a tooth be weakened by caries and still withstand the full strain of the muscles closing the mouth. This again is an unknown factor, a matter upon which we have only common observation to guide us, we have nothing established by scientific methods.

If we seek to inquire into the strength of our filling materials we will find the same to be true. We may be able to find scientific determinations of the tensile strength of gold wire or rods of certain sizes, but nothing of the tensile strength of masses of gold built up of gold foil. We may be able to learn from scientific data the crushing strain that will be borne by blocks of cast, or wrought gold, but we have no scientific data determining the crushing strain that will be borne by blocks of gold built up from gold foil. Both the tensile strain and the crushing strain of gold built up from foil are constantly brought to the test in fillings, but we have had no means of accurately determining either. We have only the observation of practical experience, unscientific and inaccurate. This paper then will necessarily be based upon this latter class of observation, not only as to the tensile and crushing strain that will be borne by gold built up from foil, but also the strain required to fracture the walls of cavities that my be depended upon to sustain the load that may be brought upon our fillings. The rules laid down will be those derived from experience and more or less close and careful observation.

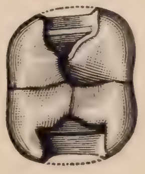

FIGURE 2.

FIG. 2. Lower second molar with mesio-occlusal and disto-occlusal cavities. The mesial cavity is prepared for the retention of the filling by broad grooving of the buccal and lingual walls, with the addition of a small step cut to the distal which is mainly to destroy the influence of a slope toward the open cavity made by the penetration of caries under the enamel in this direction. In this case the buccal and lingual walls are too light to be depended upon to support a heavy strain, and therefore the step should be extended into the central fossa for stronger anchorage, and the grooving of the buccal and lingual walls omitted.

The distal cavity is smaller, and the filling might be supported by broad grooves in the buccal and lingual walls, but a small step has been cut toward the center of the crown, giving additional support. The dotted lines show the contour of the completed filling.

A failure in the anchorage of fillings is shown first by the filling being dislodged, or forced out of the cavity by the force of mastication. Second, by breakage of some wall of the cavity, against which anchorage has been placed. Third, by a slight movement of the filling under the strain of usage which is suficient to render its margins imperfect, or leaky.

Failure of the first kind is rare among the better class of operators and occurs only as the result of some oversight or accident.

The second is much more frequent than it should be, and results from errors of judgment in the arrangement of the strain upon the frail walls.

The third seems not to have been generally recognized. It occurs when the *size* of the anchorage points are insufficient so that there is a bruising of the metal under the strain of usage in such a way as to allow the filling to move slightly and thus render the margins imperfect. This gives opportunity for the recurrence of decay.

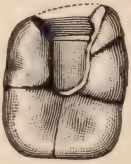

FIGURE 3.

FIG. 3. Lower first molar with disto-occlusal cavity, with step cut into the occlusal surface for anchorage, and showing the wide cutting to the buccal and lingual for the prevention of the recurrence of decay. The dotted line shows the contour of the completed filling. There is no grooving whatever in the buccal and lingual walls. The filling is supported entirely by the seat at the cervical wall and the step or dove-tail in the occlusal surface. Compare this with the seat and step shown in figures 4 and 5.

This kind of failure may be illustrated in this way: A headed bolt is put through a metal piece and made tight by a nut or by riveting. Strain is brought upon the bolt and after a time it is found that the metal composing the head has been crushed sufficiently to loosen the nut by which it was made tight. The strain is not sufficient to pull the head off the bolt. It does not give way in the generally accepted sense. If the bolthead had been larger so as to bring more metal in contact there would have been no loosening, for the reason that the metal composing it would not be bruised, condensed, or crushed by the strain. In fillings, when the amount of surface of gold in contact with dentine to form the resistance to strain is insufficient, the gold, being very maleable, will be bruised or crushed enough to allow the filling to start sufficiently to render the margins imperfect. Like the bolthead, it does not pull out, for after a certain amount of give it becomes firm in its position, but it allows recurrence of delay which soon undermines the filling. I will refer to this again later.

In the proximate cavities in the bicuspids and molars, which include some portion of the occlusal surface also, it is necessary to provide in anchorage, against two important directions of strain, the *crushing strain* and the *tipping strain*, or the ability of the filling to support the load brought upon it and the ability to withstand lateral strains calculated to force it out of the cavity.

The crushing strain is the force of mastication brought directly upon the surface of the filling. This strain is in turn transferred through the filling to the cervical wall of the cavity in all of the class of cavities of which I am speaking. Therefore it is the cervical wall of the cavity that must carry the load. In this I meet with two forms of insufficiency which combine to cause failure. First the seat of the filling is insufficient in size. Second, the seat of the filling is defective in form. This seat is the cervical wall of the cavity to which the force of mastication is transferred. In order for the filling to bear uninjured the strain of mastication the seat of the filling upon the cervical wall of the cavity must be sufficient in extent to carry without injury to the wall of the cavity, or the filling material, the strain of the closure of the jaws, otherwise the walls will be crushed, or the gold resting upon it will be crushed, either of which will be a cause of failure. For if the gold or the wall, give in the least the margins of the fillings become imperfect and leaky, and recurrence of decay with the final loss of the filling is the result. The seat of the filling must be so shaped

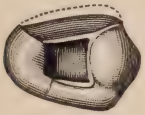

FIGURE 4.

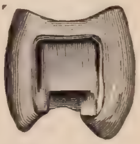

FIGURE 5.

FIGS. 4 AND 5. Left upper bicuspid with mesio-occlusal cavity, which is very broad on the mesial surface. (The artist has not shown quite the full breadth of the cavity in figure 5.) In figure 4 the dark lines show the broad square cut seat in the cervical wall, squared out at the angles as seen in figure 5, and the cross line in figure 4 shows the seat in the step cut in the occlusal surface, while the depth to which this is cut is shown in figure 5. The dark lines at the buccal and lingual walls of the cavity in figure 5 show the position of slight grooves that may sometimes be used as a convenience in building the filling, but not intended especially for anchorage. The filling is supported by the seat at the cervical wall, and by the step cut into the occlusal surface. The dotted line shows the contour of the filling.

that there will be no tendency to sliding under the influence of heavy strain. This constitutes two essential factors, extent of the surface of the seat of the filling and the form of the surface. The extent of the surface forming the seat of the filling at the cervical wall is often much limited by the circumstances of the case and then must be supplemented in other positions. For instance I may find a cavity involving a considerable extent of the occlusal surface for which no sufficiently broad seat in the cervical wall can be had on account of the proximity of the pulp. In such cases it is necessary to form a step to the occlusal of the pulp, or between the pulp and the occlusal surface, which will serve as an additional seat. In this way the extent of surface may be increased.

Again, the form of the seat is as important as its extent. There is no form of surface that will carry a load placed upon it so well as a flat surface at right angles to the direction of the strain.

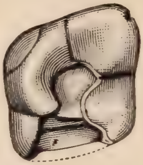

FIGURE 6.

FIG. 6. Upper first molar with disto-occlusal cavity and with step cut into the central fossa to support the filling, also an additional small step along the line of the disto-lingual groove. This small step is made to remove a slope toward the open cavity that otherwise would have occurred on account of decay along this groove going deeper than it was desirable to cut the principal step.

There should be neither slopes nor rounding of any kind and of all things there should be no slopes toward the proximate surface of the filling except the beveling of the enamel margin necessary to the formation of a perfect marginal edge. Every such slope tends directly to the displacement of the filling with every crushing strain brought upon it. These two factors, size and form, of the seat of the filling are of first importance in every proximate cavity.

I have said that the size should be sufficient to bear the whole strain of the closure of the jaws. At first glance this would seem to indicate that the size of the seat of the filling should be the same for all proximate fillings, for each, large or small, must be able to bear the whole force of the closure of the jaws, and yet this does not hold, for after all a seating surface larger than the surface exposed to the crushing strain cannot add to the strength of the filling unless it can be shown that the filling material is capable of sustaining a greater crushing strain than well supported tooth structure, which it certainly will not, whether it be gold or amalgam. Therefore, if the seat of the filling be well formed there can be no advantage in making it larger than that surface of the filling exposed to the strain. It is true, however, that the smaller fillings are not the stronger fillings. But while within certain limits we may improve the strength of small fillings by making them larger, we cannot improve them by making the seat of the filling larger than the exposed surface. This is as much as to say that all that gold will bear is all that it will bear under a crushing strain. The weakest portion will give first, whether it be the cervical or occlusal and either will destroy the filling.

Therefore, in fillings of this character there should be no undercuts in the sense of making the filling broader buccolingually at the cervical wall than at the occlusal surface, for whenever this is done every crushing strain has a tendency to cause the filling to leave the walls of the cavity at all points of undercut. The filling will be much stronger if the walls are so cut away that the cavity will be slightly broader at the occlusal surface, for in this case the buccal and lingual walls will become a source of support instead of a source of weakness. Also the building of the filling solidly and perfectly will be facilitated. This matter of so shaping the cavity that the building of the filling will be made easy should not be ignored. The plea that tooth structure should not be sacrificed is wrong both in theory and practice. When a carious tooth is presented for operation the question to be answered in the operation is, how can this tooth be made strongest, or how can it be made to endure the longest, giving good service. The question of saving this or that portion of the tooth structure simply because it is tooth structure should not be entertained for one moment. The problem is the putting of the tooth in the best condition for endurance and service. I have lost all respect for this *cant* about reaching around corners and working in awkward positions for the purpose of saving valuable tooth structure. Operating in very awkward positions tends to bad performances and the loss of the teeth under treatment. But in cases where it is clear that the conditions are such as to require difficult operations I have the greatest respect for the man who can do them successfully. And such cases occur sufficiently often, cases in which awkward operations must be made in order to conserve the strength of the tooth, filling included, but these are exceptions to the rule. Generally the art of so excavating and forming the cavity as to render the introduction of the filling simple and easy is to be regarded as an essential element of skill.

The tipping strain is the result of any force that is brought in such a way as to pry a mesial filling to the mesial, or a distal filling to the distal, and thus throw it out of the cavity. When a large cavity in a molar or bicuspid is perfectly contoured rebuilding its marginal ridge (which is unnecessary) this strain is often very great, especially if the cusps of the opposing teeth strike in such a way as to bring a strong mesial or distal pressure. This strain is, however, much under the control of the operator, who can, and generally should so form the surface of the filling as to reduce this strain materially without too much reduction of the usefulness of the occluding surface. This manner of reducing the tipping strain by rounding off the surface is often carried much too far, so far indeed as to materially lessen the usefulness of the tooth or even to cause serious wedging of food between the teeth and thus destroy the usefulness of both this and neighboring teeth. As to this point no ironclad rules can or should be given. The occlusal surface of the composite proximate filling should be more or less rounding toward the proximate surface. 1st. If the anchorage against the tipping strain is ample it should be built to full easy occlusion except that the marginal ridge should not be restored. 2d. If the anchorage against the tipping strain is not considered as perfectly good and strong, the occlusal surface should be rounded toward the proximate surface more or less, and in such a way as to cause food to slide over the filling without being so caught as to cause a serious tipping strain. However, this rounding should never be carried to such an extent as to cause food to wedge into the interproximate space and thus become a source of injury. The filling must be made to protect the interproximate space whatever else be its shape. In many cases the tipping strain may be materially reduced by grinding away a cusp from an opposing tooth or modifying its form so as to change its direction of force.

This strain is not alike in all positions. The teeth generally have more or less mesial inclination, that is, they do not occlude perpendicularly end to end, but following the curve of the arch they are more or less inclined to the mesial. Again the motion of the lower jaw is not directly up and down, but swinging on the condyles, its motion is in the arc of a circle closing upward and forward. It happens therefore that in the bicuspids and molars of the upper jaw the tipping strain is much greater in mesio-occlusal cavities than in the disto-occlusal, because the motion is such as to bring the crushing force in a direction calculated to force them out of the cavity toward the mesial. This strain is also greater in strongly bell crowned teeth than in thick necked teeth because of the greater *overhang* of the mesial surface. This should be remembered and a sufficient safeguard provided. In the lower jaw the mesial and distal cavities are about equally exposed to tipping strain. Some writers have stated that the distal surfaces of the lower teeth were most exposed to this strain, but I think a close study of many models will dispel this idea. In special cases, especial liability to strain in this direction or that will have to be guarded against particularly when teeth incline more than usual in any direction. So much as to the means of rendering the tipping strain as light as possible.

The means of anchorage against the tipping strain will next claim our attention.

In small cavities, those occupying one-third or less of the proximate surface, bucco-lingually, anchorage against the tipping strain may be made by grooving the buccal and lingual walls of the cavity. These grooves should be placed as deeply (i. e. as far as possible from the surface of the tooth) in the dentine as the depth of the cavity will allow. There is nothing gained by cutting them deeply into the buccal and lingual walls while the depth materially weakens the tooth. They give greater strength when made broad and shallow than when made narrow and deep. The rule is that the greater the surface of gold, solidly packed, that can be made to impinge upon the anchorage surface the stronger the anchorage will be. Narrow deep grooves are contraindicated while pits are valueless for this purpose.

I have spoken of this before, giving the illustration of the small bolthead which has been sufficiently bruised or crushed by the strain brought upon it to have become loosened. Now gold is very malleable and when only a small surface of gold is depended upon to hold against the tipping strain, this surface is liable to be sufficiently crushed, battered or condensed, by impingment against the narrow points of anchorage to allow the body of the filling to part slightly from the walls.

With this slight condensation of the gold the increased hardness becomes sufficient to withstand further movement and the filling remains firm. But the movement has destroyed the value of the filling by rendering it leaky and thus giving opportunity for the recurrence of caries. Of the correctness of this I have satisfied myself by a number of observations in which the cause of the movement could not be mistaken because made before decay had occurred. After decay has occurred one may often be uncertain whether or not the margins may have been imperfect from the beginning. For these reasons narrow grooves should not be depended upon to sustain fillings. It is much better to anchor against slight slopes having the elements of the dovetail in which the strain is distributed over a more considerable surface thus preventing the condensation of the gold against the anchorage points.

When the cavity occupies more than the middle third buccolingually of the proximate surface the rule should be that no attempt be made to anchor against the tipping strain by grooves in the buccal and lingual walls, for then the necessary grooving will become a source of weakness and render the walls too frail to safely support the filling. Indeed when a cavity has become of this extent it ought to be cut widely to the buccal and lingual in order that its margins may be so removed from near approach to the neighboring tooth as to render them self-cleaning—extension for prevention of recurrence of caries—and this renders any sufficient anchorage by grooves in the buccal and lingual walls impracticable. In this case and in all larger cavities the anchorage should be made by what is commonly known as a dovetail cut into the occlusal surface of the tooth. This cut should not be made very deep, a trifle more than the thickness of the enamel generally being sufficient. Indeed a deep cut in this position becomes a source of weakness instead of strength for the reason that it renders the buccal and lingual cusps, especially in bicuspids, liable to be split off by the force of the occlusion, a matter that must be especially guarded against. We must always remember that in preparing our anchorage we should guard the strength of the tooth in its entirety. This dovetail in the occlusal surface should have upon its buccal and lingual walls such a form that the filling cannot slide out of the cavity. The bottom of this cut should be flat and well squared out at its angles in order to form a firm seat for this portion of the filling, and especially there should be no slope toward the open cavity. In many cases the original decay will be of such form as to make it difficult to avoid some such slopes, but every available means should be used to form steps, and in this way destroy the influence of the slopes.

In a few cases I have seen solid fillings in such dovetails stretched by the force of mastication sufficiently to allow the main portion of the filling to leave the buccal and lingual walls of the cavity and thus destroy the filling. For this reason I often fill these anchorage slots with platinum gold when a very heavy filling is to be supported. Judging from close observation directed to this point I am of the opinion that platinum gold well welded and condensed will bear from one-third to one-half more strain than pure gold in such positions. The anchorage slot can therefore be that much smaller and give the same support, and the cusps of the tooth need not be weakened by so deep a slot.

In cases in which the buccal and lingual walls, one or both, are thin and frail, so that a portion of the wall of the cavity becomes liable to breakage by catching some hard substance upon it, it should be cut away sufficiently to build the gold over its margin in such a way that the strain will come upon the filling itself instead of the wall. This part of the filling should be carried sufficiently far that nothing can catch upon the margin of the frail wall and also the filling material should be thick enough so that it will not be crushed by the strain of mastication. A very thin layer of filling material over such a wall is worse than useless, for it is likely to be crushed against the wall in such a way as to break it down.

In this paper I have said nothing about the anchorage of fillings in cases where the pulp has been removed. In all of this class the more direct subject for discussion would be the conservation of frail walls, a distinct subject in itself.

THE EFFECT OF ERUPTIVE DISEASES ON THE TEETH.

BY JOHN J. R. PATRICK, D. D. S., BELLEVILLE, ILL.

There is no portion of the living body so complicated, so subject to varied and numerous changes, and that presents so many obstacles to treatment when diseased as that portion of the human skull which is occupied by the face. The greater portion of the anterior section of the human skull is a mere light framework of delicate plates of cancellated bone, presenting very little strength when divested of its soft tissues and cartilage. All the bones that form the face are mere shells so arranged as to form chambers. These chambers are lined with mucous membrane, continuous and communicating with each other, with the pharynx and with the nasal and oral cavities. It is in this region where all the special nerves are clustered, and the amount of involuntary nerves with which this region is endowed makes it the very center of involition. The vital activity of this portion of the human body is well seen in the frequent flushing of the face in early childhood, when the sinuses and processes are forming and the teeth are developing; At this period the process of nutrition attracts more vital activity to these parts than can be found elsewhere, and can only be compared to the vital redundance of the blood vessels in the antlers of a stag when growing, or the orgasm of a gravid uterus; even in advanced life there is always more or less turgescence present. The abundant supply of involuntary nerves and the extensive capillary system with which this region is endowed, bestows upon the human face an independence of the will, so that that which we would most wish to conceal is often betrayed—as in grief, joy, melancholy or when the blood rushes to the face in a blush, or retreats with equal rapidity leaving the face pale as in fear. Every individual when moved by sympathies is conscious of a peculiar sensation in this particular region before the phenomenon takes place, and for these reasons the illustrious John Hunter called this region "The sensitive center" of the human body. The tendency of this part of the body to be overrun with red blood, disposes it to become more frequently the seat of affliction; erysipelas is oftener detected in this region than in any other, and it is the principal seat of pustules in small-pox and ecchymosis in other eruptive fevers. The laws that govern life, marvellous to the human intellect as they are, appear to be incapable of causing the teeth cased in their hard enamel to expand and grow as the softer bones; and hence has arisen a provision more extraordinary still. A series of twenty deciduous teeth are provided which successively come into use soon after birth; previous to three years they are not all present, and later than six years they begin to drop out, by a physiological process of exuviation, and are replaced successively by others which are to endure for life. The expression "teeth of the first set" meaning the deciduous teeth, is likely to lead to error, for the reason that the six upper and six lower molars are teeth of the first set, which are never replaced by others. In a human being of twenty-five years of age the permanent series of teeth, thirty-two in number is generally complete. Twenty are teeth of replacement, or succedaneous teeth, which replace the twenty deciduous that are thrown off; the twelve molars which are to the posterior have no predecessors, and never mutate.

Now the greatest number of teeth to be found in the human jaws at one time, in a state of progression and retrogression are in the jaws of a child from five to five and a half years old. At this age there are forty-eight teeth—twenty-eight permanent teeth more or less calcified and ossified, and twenty deciduous teeth undergoing a retrogressive physiological metamorphosis; but the germs of the third molars at this period are not present. It is only from a child between four and five years of age that a perfectly formed deciduous tooth can be obtained, for we find that before the fourth year the root ends of these teeth are not quite formed, and after the fifth year they commence to exuviate. In all the transmutations which take place in the retrogressive and progressive phenomena presented by the teeth the surrounding tissues are built up and removed with equal pace. All the anterior portion of the jaws are subjected to four changes during life. *First*, the progressive, and *Second*, the retrogressive metamorphosis of the twenty deciduous teeth with their processes. *Third*, the progressive, and *Fourth*, the retrogressive metamorphosis of the twenty succedaneous teeth.

In the posterior region of the jaws in which the twelve permanent molars are developed there are but two changes which take place: *First*, the progressive which commences in youth and continues until middle age, and the retrogressive which commences in the decline of life and continues until extreme old age. In the region of the molars the growth of the jaws is from the posterior to the anterior and vertical.

In the region of the succedaneous teeth vertical only; thus the arch in the succedaneous region is not increased in size but the whole jaws are elongated and the palate increased in depth. Now it is well enough to observe that the eight bicuspid teeth which belong to the permanent series in man are not preceded by teeth of the same character or form, nor do they occupy as much space in any direction in the form of their crowns as their predecessors.

They therefore are classed as a definite and separate species from the true molars. The deciduous molars which precede the bicuspids occupy a different position in their relation to the power that moves the lower jaw upon the stationary upper jaw.

Had they been succeded by teeth with large, square crowns, with broad masticatory surfaces, they would have been comparatively useless after the development of the permanent molars, and consequent progressive growth of the jaws from the posterior forward. The usefulness of the deciduous molars for grinding purposes decreases soon after the sixth year or first permanent molars make their appearance, and from three to four years later the bicuspids take their place better adapted in form and position to the power that moves the jaw.

This arrangement as to the change of form in the succeeding bicuspids which occurs in man and the apes, does not take place in animals that have long jaws, as their permanent teeth are exact duplicates of their deciduous ones. This is owing to the different arrangement of the attachment of the muscles that move the jaw. The arrangement and development of the deciduous teeth in man are further examples of the same law; the cuspids appear a few months later than the first molar, but a little before the second molar; whereas in the second series of teeth the bicuspids appear before the cuspids; the deciduous cuspids being carried over to the eleventh or twelfth year, the last remaining teeth of the deciduous series; and there is no necessity for their earlier displacement, notwithstanding they are gradually removed from the power that moves the jaw; being wedged-shaped they would always be of service in the anterior portion of the jaw. In point of lever power in the undeveloped jaw of man the deciduous cuspids represent the first bicuspids, the first deciduous molars the second bicuspids, and the second deciduous molars, the sixth year or the first molar of the permanent series. Thus we have presented in the human mouth remarkable instances of how the forces in nature modify and mould the forms of plastic material to suit the circumstances that surround them.

These progressive and retrogressive changes commence in early fœtal life, and persist with *form* and *force* in strict accord with mechanical law. But nearly every germ, during the period of development, meets with obstacles, meets with contending forces; so that countless millions of the germs or seeds that are produced never come to maturity, but rot before ripening, and by far the largest number that do mature are warped, gnarled and twisted to such an extent that few can be said to be in that condition that physiologists call normal. Constant, unrelenting and persistent are the contending forces which govern life; an excess of either one or the other must change or modify the character of the organism upon which they act; and the wonder is to the observant mind, not that nature does her work so poorly, but that she does it so well.

Mankind may be said to possess great uniformity of structure, so much so that they bear a strong resemblance to each other. This is only true in a general sense; in a special sense it is far from the truth, even in typical cases, as in distinct tribes of men, we find great variation in structure. When we reflect upon the infinite complexity of parts and the necessity of each part developing with equal pace, in order to produce a perfectly formed organism, we are driven to the conclusion that a perfect organism would be an anomaly among all other organisms.

During a natural lifetime there are developed in the oral cavity of a healthy human being fifty-two distinct and complex organs, which include the twenty deciduous and the thirty-two permanent teeth.

Now in a healthy twenty-five year old subject in which the teeth are fully developed it would be difficult to find a perfect set of teeth fulfilling all the requirements of *Form*, *Volume*, *Number*, *Direction*, *Structure*, *Nutrition* and *Disposition*, in relation to each other, without seeking an ideal standard of perfection wherewith to judge them.

Whatever may be said in regard to the malformation of the bony portions of a tooth there can be no question as to the time in which defects of the enamel are produced, and as this portion of the tooth is the first to form, and is formed before it is exposed to external influence, the cause of its malformation must be internal, or defect in *Nutrition*, and must be sought for in its early formation. The development of the deciduous teeth commences in the seventh week of *intrauterine life*.

Seventh week: The papillæ of the first deciduous molars make their appearance.

Eighth week: The cuspids.

Ninth week: The central incisors, and soon after, lateral incisors. The germs of these teeth are observable at the periods stated, but their follicles are formed later.

Tenth week: The sides of the primitive groove before and behind the first molars approach each other, sending off processes from each side, which meet and inclose them in follicles.

Eleventh week: During the latter part of the tenth week similar follicles are gradually forming around the cuspid teeth, and the papillæ of the second molars make their appearance.

Eleventh and twelfth weeks: The incisor follicles are formed.

Thirteenth week: The follicles are formed for the second molars. (The germs and follicles of the lower teeth do not appear quite as soon as the upper.)

Fourteenth week: Provision is now made for the production of the teeth of replacement or succedaneous teeth, by a secondary groove immediately behind the primitive groove, in which the germs of the central incisors appear, next the laterals, next the cuspids, and lastly the first and second bicuspids, from which the sacs and pulps of the twenty anterior permanent or succedaneous teeth are to be produced.

Sixteenth to seventeenth week: The primitive groove has now extended itself back of the second molars, and from the floor of which the papillæ and follicles of the first permanent molars begin to develop.

The periods of calcification of the deciduous teeth commence during the sixteenth or seventeenth week of *intrauterine life* in the following order:

First, on the first molars,

Second, on the central incisors,

Third, on the second molars and lateral incisors.

Fourth, on the cuspids.

The first tooth germs that appear in the human subject are the anterior deciduous molars; they do not make their appearance through the gum however, until the incisors appear. The follicles of the permanent teeth are formed about the time the deciduous teeth commence to calcify but they undergo a period of comparative rest and do not commence to calcify until a little before or immediately after birth in the following order:

First permanent molars a little before or immediately after birth.

The central incisors five or six months after birth.

The lateral incisors eight or nine months after birth.

The canines or cuspid teeth at nine or ten months after birth, but they do not come into use until after the first bicuspids.

The first premolar which is a bicuspid commences to calcify at or soon after the second year.

The second premolars at three years.

The second permanent molar between the fifth and sixth years.

The third molar or *dens sapientiæ* begins to calcify about the twelfth year. This order of succession in calcification is described for the lower jaw, the teeth of which usually appear earlier than the corresponding ones in the upper.

I have entered thus far into a description of the origin and development of the teeth; in order to illustrate the detrimental influence of eruptive fevers on the teeth during the periods of their formation; and while eruptive fevers are not the only factors to be recognized in producing abnormal conditions in tooth development; I consider such fevers a prolific source of faulty nutrition in these organs; as the following cases observed in my practice will fully exemplify.

Mrs. S., during the fifth month of gestation was afflicted with scarlet fever—recovering, in the course of time gave birth to a child. This child's teeth appeared unusually early, the enamel discolored, pitted and granular and absent at the incisive margins and the teeth barely extended beyond the gum. He is now fifteen years old with all of his permanent teeth except the third molars. These second teeth, with the exception of a little decay, are in good condition, the enamel smooth and white and all the teeth large and strong. Three years later another child was born, and soon afterward the first child contracted the measles and the second child also contracted the disease. In the course of time the deciduous teeth of the second child appeared, all in excellent condition, but were lost unusually early, and the second set appeared in the following order: The sixth year molar at four years. The central incisors at five years. The premolars between the sixth and seventh years; and the cuspids between the eighth and ninth years. All these teeth are discolored, pitted and granular, and the enamel is worthless as a protection to the dentine. Now a third child was born, who is now six years old, and has not been subjected to the same influences that his brother and sister were during the period of dentition and he enjoys the luxury of a good clean set of deciduous teeth. The first permanent molars that are now appearing are so far as observed, in good condition.

While the teeth during the process of formation are liable to be influenced by eruptive fevers, the alveolar process of the deciduous teeth, during the retrogressive metamorphosis which commences between the fifth and sixth years, is also liable to be affected by the same cause; for at this period all the nutrient vessels that supply the deciduous process are on the wane, and the low vitality of the parts makes this region a vulnerable point during the existence of eruptive fevers.

IMMEDIATE ROOT FILLING.

By Junius E. Cravens, D. D. S., Indianapolis, Ind.

"Is immediate root filling advisable :

1st. After heroic extirpation of live pulp ?

2d. After removing devitalized pulp ?

3d. After removing putrescent pulp ?

4th. Where there is a peridental membrane abscess, with fistulous opening ?

5th. The same, without fistulous opening ?

6th. What preparatory treatment should each condition receive, and with what material should roots be filled ?"

Surely, to answer all of these interrogatories would require an inspiration. Where is our Isaiah ?

To begin with, what is the purpose of filling a canal in a root at all ? The canal under consideration is, in a general way, an axial opening extending the length of the root of a tooth. When it contains a living, healthy pulp, practically it is a medullary canal. The pulp itself contains an arrangement of minute blood vessels, nerve fibers and absorbents, supported by connective tissue ; in fact is on organ, or rather what is left of an organ that has been atrophied almost to extirmination, by persistent self-sacrifice. I take it that if a pulp were permitted to finish the task it sets out to perform, there would eventually be no canal to vex or make us afraid. And how is this self-sacrificing process arrested ?

1st. By development of apical cementum, that so constricts the pulp at that point that its vital power is reduced, and the activity of odontoblasts is arrested. Thus the development of regular dentine is checked.

2d. By violence; by external irritation; by drugs applied to devitalize the pulp; by death of the pulp from any cause.

3d. By "heroic extirpation of live pulp."

1.

In this third proposition we are brought to consider the first of the series of interrogatories under which this subject has been presented by your committee. By "heroic extirpation of live pulp," presumably is meant the forcible dislodgment of the organ, causing vacation of a canal that already has caused more contention than the Suez canal, and that will continue to trouble long after De Lesseps' Panama ditch shall have been obliterated and forgotten.

What an awful responsibility your committee has assumed? But a live pulp has been pulled out, and what of it? A minute artery and vein has been snapped into within, or just external to the apical constriction; naturally a slight hæmorrhage ensues, sometimes quite flooding the canal, rarely more than this. All hæmorrhages have an ending, and blood is easily removed, even from a root canal. What is to be done! Remove the damning evidence of the blood-curdling tragedy. Dry the canal by any means you may see proper, and without more ado proceed to fill it with whatever material and by whatever method has been most effective in your hands. This done, your duty as a dentist has been performed. I can conceive of no possible beneficient effects to be anticipated from the introduction of medicinal agents into a root canal, once or twenty times following extirpation of a live pulp, unless, perhaps, for the checking of persistent hæmorrhage, a rare emergency.

To the first interrogatory I will answer, yes! and claim the privilege of explaining that I do not favor the practice of "heroic extirpation" of live pulps, consequently do not pursue it.

2.

"IS IMMEDIATE ROOT FILLING ADVISABLE, AFTER REMOVING DEVITALIZED PULP?"

To devitalize a pulp, an application is made to the organ, or in close proximity to it, of some medicinal agent that first arrests circulation within the pulp; stasis is established and death ensues. If removal of the pulp is practiced before putrescence obtains, it must be accomplished by practical extirpation. In this connection I can discern no material difference between a canal that has been vacated by extirpation of a live pulp and one by extirpation of a devitalized but non-putrescent pulp. To the patient the difference may be very marked, but to the operator practically none.

In the removal of a devitalized but non-putrescent pulp the same apical hæmorrhage may be observed to follow as in extirpation of a live pulp. The separation of the dead from the living within, or at the apical constriction, may be attended by apparently the same degree of pain in both cases; but the introduction of a broach into, and its passage through the devitalized but non-putrescent pulp, while occasioning some pain, is far less painful than the penetration of a live pulp to an extent essential to accomplish extirpation.

Usually I find no occasion for extirpation previous to incipient putrescence unless there shall present an emergency. This subject as presented by your committee does not call for a discussion of emergency measures. My position then as to the second interrogatory is that the removal of a devitalized pulp that is non-putrescent leaves the canal in practically the same condition as after extirpation of a live pulp; therefore, my practice would be precisely be the same as to the immedite filling of the canal.

3.

"IS IMMEDIATE ROOT FILLING ADVISABLE AFTER REMOVING PUTRESCENT PULP?"

Now may all saints and phagocytes defend me; for as I wade the water appears darker, deep and dangerous. What is a putrescent pulp? In short, a dead pulp in which decomposition has begun. By decomposition there is watery degeneration of a pulp, and generation of sulphureted hydrogen within the cavity occupied by the pulp.

What effect such degeneration can have upon the surrounding dentine, I am at a loss to discover. Often we observe that pulps have died from some unknown cause and given no sign. Evidently in such obsure cases the usual course of decomposition must have transpired; the complete maceration of tissue and final resorption effectually removed all traces of pulp, and we found the canal empty, even dry and almost inodorous. In such cases the tooth has perhaps retained a natural color; no fistula indicates abscess; all outward appearance indicates a live, healthy pulp. It is useless to speculate upon what becomes of the gas and macerated tissue in cuch a case. Does it disappear in the surrounding tubuli? If so, why does not discolation of dentine ensue? But Professor Miller, of Berlin, says in effect, that the tubuli retain their original organic contents after death of a pulp, and are not accessible to antiseptic fluids introduced into the canal. If this be true, why should the tubuli be permeable to the fluids resulting from decomposition of the pulp in the canal? And suppose, for sake of argument, that the water of decomposition may be, has been absorbed by tubuli; what has become of the sulphureted hydrogen also generated in the canal? Does any one suppose that the gas has also been absorbed by the little tubes? And if the sulphureted hydrogen were so absorbed, is there any medicinal or purely chemical agent that can be appealed to for the removal of the gas from dentine? Iodoform may be introduced into a canal and cover up the odor from sulphureted hydrogen, because iodoform can outstink any gas under the sun.

A platinum wire may be introduced into a canal and heated by electricity; a very effective way to dry the walls of the canal, certainly; but the odor of scorched bone is scarcely preferable to sulphureted hydrogen emanating from a pulp canal. Any solid substance introduced into a canal would displace any gas found there; the platinum wire would do this without being heated, but the odor would remain. The odor of sulphureted hydrogen will cling to a glass tube through which it has been passed. After all, what deleterious effects are to be anticipated from the odor that clings to the walls of the canal from which a putrescent pulp has been removed?

After removal of a putrescent pulp, I would dry the canal and immediately and permanently fill it.

4.

"IS IMMEDIATE ROOT FILLING ADVISABLE WHERE THERE IS A PERIDENTAL MEMBRANE ABSCESS WITH FISTULOUS OPENING?"

On this point permit me to quote from an essay on "Management of Pulpless Teeth," read by me before the Ninth International Medical Congress, Washington, D. C., 1887. "A fistula may be depended upon to accomplish all necessary drainage of pus from the cavity of an abscess after closure of the apical end of the pulp canal. When no more pus shall be formed, the fistula will disappear for want of exercise.'' "A fistula is the dentist's friend and best ally; it accomplishes drainage of pus and thus relieves the pulp canal of a pernicious service." "A fistula from an alveolar abscess should never be interfered with in any direct manner, but should be encouraged to perforn its good offices, and will certainly disappear when its task is done."

In answer to the fourth interrogatory, I hold that immediate root filling is advisable where there is abscess with fistulous opening.

5.

"IS IMMEDIATE ROOT FILLING ADVISABLE WHERE THERE IS A PERIDENTAL MEMBRANE ABSCESS WITHOUT FISTULOUS OPENING?"

If I correctly comprehend this interrogatory, it refers to what is commonly termed "blind abscess." The darkness of the design of your committee is become truly Egyptian ; oh, for stronger spectacles.

Be kind enough to indulge me in another self-quotation bearing upon this point : "Diagnosis of blind abscess of alveolar process is largely guesswork, because the single item of a wet canal does not prove the presence of pus, nor the existence of an abscess cavity. When blind abscess exists, the accumulation of pus is so very slight that it will cease altogether after the cause has been removed by closing the apical end of the pulp canal. In nearly all such cases, prompt closure at the apex will be followed by no noticeable inflammation, if proper care be observed in manipulation within the pulp canal."

In all cases "the apical end of a pulp canal should be permanently closed as soon as the canal is *laudable*—that is to say—as soon as *free from pus* or other fluid, and *all obstructive matter*." "*A clear, clean canal is always laudable*."

In reply to interrogatory five, I would remove all obstructive matter from the canal, absorb moisture from it until no more appears, and immediately permanently fill the canal, feeling assured that the operation "will be followed by no noticeable inflammation," if proper care has been observed that nothing has been forced from the canal through the apical constriction.

6.

As to the sixth interrogatory, I have given *ad seriatum* my opinion as to "*what preparatory treatment should each condition receive*," and in closing with consideration of "*with what material should roots be filled?*" will state that I am a stanch believer in the efficacy of gutta-percha dissolved in chloroform, or what is better, a thin batter of oxychloride of zinc, either to be forced home with gutta-percha points. As a precaution against either preparation mentioned being forced through the opening at the apex of the root, if a canal is fairly penetrable I first close it at the apical constriction with a slender ribbon of thin tin foil.

If a canal is too narrow or tortuous for free manipulation, I omit the tin ribbon, and trust to careful manipulation to avoid forcing the gutta-percha solution or oxychloride batter through the apical opening. *Beyond the apex—danger lurks.*

I hold that immediate root filling is advisable, and am content to leave measures and materials to men.

RECENT ADDITIONS TO THE THERAPEUTICS OF PYORRHŒA ALVEOLARIS

BY A. W. HARLAN, M. D., D. D. S, CHICAGO, ILL.

In considering some of the therapeutic measures to be utilized in the eradication of pyorrhœa alveolaris or the correction of loosening of the teeth, the mind of the operator naturally concludes that the teeth have been firmly banded, wired or fixed in place, so that they will not be swaying to and fro like the branches of a tree in the face of the wind. A presupposition will also include the detachment of sanguinary or serumal deposits, their removal from the pockets, and the perfect cleansing of the pockets with a solution of sodium fluosilicate in water, 1 to 155. This solution is in most cases followed by the injection of an 8 per cent solution of sozoiodol which is dissolved in water. Now, if the operator desires to get the benefit of nascent iodine the injection of a very small quantity of pyrozone or hydrogen peroxide will liberate the iodine which will permeate the recesses of the pocket. It is not for a moment to be thought that the writer has abandoned peroxide of hydrogen, because it is used frequently for cleansing purposes, but some experiments with alkaline solutions, boro-glycerine in water, boric acid water, C. P., one to twenty-five, and sodium fluoride in water, one to three hundred down to one hundred and fifty-five, have convinced me that in the beginning of the treatment they are more valuable as cleansers than they have been thought to be. The products of the microbes in the pockets where pus is found are almost wholly acid in reaction, and an alkaline solution will be generally indicated instead of one acidulated. Later, in the management of such cases, stimulating, acidulated and astringent injections are a necessary adjunct in the control of the production of pus. We have been singularly fortunate in the last year or two in the general introduction of the trichloracetic acid, alumnol, and the combination of dilute sulphuric acid, dissolved in cinnamon water. The various pyrozone solutions are the relatives of hydrogen peroxide, and as such are to be used in the places where peroxide of hydrogen was formerly indicated. The particularly valuable drug in the newest list is trichloracetic acid in varying solutions from one-half of one per cent to six or eight per cent in water. This is a most valuable astringent, stimulant and refrigerant. Its germicidal value consists in the complete destruction of the organisms found in pyorrhœa pockets. In a period of less than two minutes all movements will cease when one-half per cent solutions are used, and as even stronger solutions are required, we generally use double or quadruple this strength, it may be considered a positively effective germicide. The drug is used every other day or once in three days. When a powerful astringent is needed, one that will penetrate, an aqueous solution of alumnol is indicated. It has the property of coagulating, then dissolving the coagula and penetrating still deeper and reforming a coagulum, and at the same time it is a stimulant and germicide. It is soluble in water up to forty parts in one hundred. I generally use about two to seven per cent solutions, seldom stronger, although experimentally I have used solutions up to the limit of solubility. In such cases—very desperate ones—one application will be found sufficient. Much discrimination is needed in the treatment of cases of loosening teeth, for instance in the general wasting of the alveolar process and recession of the gums without the sanguinary deposits on the roots. In such cases it is best to begin with from one to two per cent of sulphuric acid dissolved in cinnamon water for four or five visits at intervals of three days between each visit. I recommend a dentrifice during this period composed of

℞—Sodium fluoride	gr. C.
Creta preparata	℥j.
Powd. orris root	℥ij.

perfume with an esssential oil to suit.

This treatment is followed by, say, at the end of fifteen days, with injections of two to six per cent of sozoidol for a month, once every three or four days. When desired, a small quantity, one drop of the solution is injected into each pocket. If the gums are much thickened, with blunted septa, they are painted with a solution of iodide of zinc, twelve grains to the ounce of water, always carefully drying them before using the solution. When a case is presented in the acute stage, a paste composed of iodol and cinnamon oil is used, gently rubbing it into the pockets with a thin spatula; when much pain is present, I use as an injection into each pocket the following:

℞

Melted carbolic acid	Minims XL.
Eugenol	Minims XXX.
4 per cent solution of hydrochlorate of cocaine	Minims L.
Acidi boracici	Gr. LX.

At first the solution will not be clear, but after a time it will become homogeneous. One-half to one drop in a pocket will arrest the pain. Usually there are not more than three or four pockets to be treated under such circumstances, and there will be no particular soreness follow such an injection. This is not to be repeated unless there is great pain.

In rheumatic subjects, I have found from five to ten grains of iodide of potassium in peppermint water, after meals for a week or two, will materially aid the local measures. All cases of loosening where there are serumal deposits, are much benefited by using trichloracetic acid in water up to six or seven per cent injected into the pockets carefully with a gold, glass or platium pointed syringe. An interval of one to two weeks is allowed to elapse from time to time in the treatment of all cases, without any care save cleanliness and massage of the gums by the patient himself. This will be found of decided utility when the tissues become, so to speak, habituated to the introduction of medicines. I need not emphasize the uselessness of attempting to save all loosened teeth as there are some from their location and the occlusion that no treatment will save permanently. This matter of extraction must be decided by the dentist without delay as the attempt to save a tooth already hopeless is only a waste of time, and it may endanger the future stability of others not much affected. The destruction of a pulp of a tooth is often indicated when it is inflamed from the depth of a pocket, alongside the root of a tooth. Many cases that are so stubborn that they will not yield to local treatment, are promptly relieved by the filling of a root and the continuance of the previous line of medication. I do not urge the unnecessary destruction of the pulp of any oral tooth, so it will cause disfigurement but great care must be exercised in the selection of cases, with the happiest results, should no mistake be made in the outset. If the patient in any case is found to be a mouth-breather, a rhinologist should be selected to correct this habit if it is possible to do it. Enlarged tonsils and a thickened nasal mucous membrane must be gotten rid of in some manner before the protrusion of the teeth can be arrested. Probably the greatest number of deformities in the protrusion of the six anterior upper teeth are produced by mouth breathing, aside from the loss of the inferior molars, allowing the inferior incisors to strike against their lingual surfaces. This latter case being purely mechanical, the fitting of teeth or bridges to supply the loss of molars is indicated as a means whereby the protrusion can be arrested. The whole *modus operandi* of treatment of loose teeth requires much patient study and the adaptation of every aid to secure any degrees of success, therefore I urge upon you the absolute necessity of studying each case before laying out a line of treatment, as no well-defined plans in advance will cause much subsequent trouble and the probable loss of many teeth which might be saved had thought been bestowed upon the case in the beginning.

CONSERVATISM IN CROWN AND BRIDGE WORK.

BY C. B. ROHLAND, A. M., D. D. S., ALTON, ILL.

A large proportion of the "want" advertisements calling for assistants in our journals signify that the applicant must be "well up in crown and bridge work." Assistants also in advertising for situations announce, as the most important and taking of their qualifications, that they are "well up in crown and bridge work." Even colleges now indicate in their announcements that special attention is paid to these branches, and offer increased facilities, to the end, that their students may become especially proficient in crown and bridge work. Advertisements in innumerable dailies and weeklies, adorned with fetching cuts of plateless substitutes, also show that this is being made a specialty to a very large extent.

As an indication of an awakened interest in metal working and a gradual return to the skill and manual training of the old metal workers in dentistry, this is gratifying, and not the least of the debts that dentistry will probably owe to this revival, will be the gradual abandonment of the slipshod and slovenly methods due to the introduction of rubber and its equivalents. The workman, whose conception of mechanical dentistry is bounded by gum teeth and the vulcanizer, is no longer equal to the task of presiding over the modern laboratory. The precious metals are now to the front, and no one is considered competent to assume the responsibilities of the laboratory, unless he is "well up" in their use.

This is a delightful change from but a few years ago, when almost anything that had two hands, and could watch a vulcanizer and mix plaster, would do. As an indication of a "fad," however, that is being run into the ground, and that is ruthlessly sacrificing scientific requirements on the altar of elaborate mechanism, the situation is one that may well call for thoughtful consideration. The indiscriminate use of these valuable adjuncts to prosthetic dentistry has become so prevalent that in the judgment of your executive committee, with which many others heartily agreed, this subject was considered of enough importance to merit a place in the discussions of this meeting.

It will not be the purpose of this paper to decry either crown or bridge work. The system, even with its many imperfections and limitations, is unquestionably the greatest advance in dental prosthetics that has ever been made for the benefit of a suffering public. This much is freely yielded to begin with. It is only intended to call attention to a stubborn fact that is too often lost sight of; that it is not a panacea, but that it has its limitations beyond which the honest dentist must not allow himself to be carried by his enthusiasm or his greed.

There is considerable temptation to the unscrupulous to shut their eyes, when conditions contraindicate this class of work, because of the money there is in it. The enthusiastic bridge worker nearly always clinches his arguments with the all-sufficient and telling assertion of how well it pays.

Because, too, of the gratitude and good opinion of the patient, in that, restoration is complete and immediate.

Because of the opportunity it offers of constructing handsome, showy and expensive pieces of jewelry, with which to astonish the patient and his friends, and gain, perhaps through the faithful work of a paid assistant, a reputation for most wonderful skill.

And, because of competition. The competitor across the way does it, and must not be permitted to monopolize all the glory to be gotten out of this "latest and greatest invention" of modern dentistry.

Besides, its advantages are real and obvious, in that it provides a system of replacing lost and restoring broken down and useless teeth and roots, dispensing with a plate that interferes with both speech and taste; that is not firm; that is liable to produce pathological conditions of the mucous membrane covered by it, and denudation of the cervical parts of the natural teeth touched by it The new denture, on the other hand, is firm, strong, fixed, and capable of doing work not possible to a movable plate. It is especially adapted to small spaces where the substitutes hitherto in vogue have so often been so unsatisfactory.

Nevertheless there are objections and limitations which, in its present stage of development, are real enough to materially curtail its applicability, objections too frequently made light of, or entirely ignored, but which should have enough weight to act as a check on its indiscriminate use. I shall pass over the special consideration of crown work for the reason that, as it forms an integral and important part of bridge work, much that may be said of the latter necessarily applies with equal force to the former.

First and foremost, there is no other operation in dentistry calling for such a high grade of skill, such a comprehensive knowledge of anatomical and physiological relations, such fine intuitive perception of pathological possibilities and probabilities, as bridge work. Doctor Bonwill truly described the situation when he once said, that "but few even of the best dentists are capable of performing the high class of work necessary to make it (bridge work) successful."

The problems in almost every case are so deep, and so far reaching, that the average dentist should approach them with all humility and caution. This applies to the crown work part as well. To make a perfect fitting cap or crown in all cases is not the easy matter many apparently take it to be. The assertion has been made that not more than one in five crowns made by skilled hands turns out to be such a perfect fit as to absolutely keep out secretions. My experience and observation lead me to accept that statement as containing a large amount of truth. If that applies to skilled workers what shall be said of the productions of the average dentist? The testimony of all expert bridge workers is, that the highest grade of skill alone is equal to its demands. This, then is the first limitation.

Again, to keep the denture even approximately clean is a matter of some difficulty. Much depends on its proper construction, much also depends on the patient's efforts. The two combined will go a great way toward securing fairly good hygienic conditions. The best gold and porcelain work is, however, liable to disagreeable odors. No amount of skill and care is able to unite gold and porcelain so perfectly as to keep the secretions of the mouth from between them. In addition, very many patients are *not* cleanly, and will *not* expend the time and effort necessary to secure good hygienic conditions. That lack of cleanliness in any artificial denture is frequently responsible for disturbances, both local and systemic, goes without saying. These conditions are liable to be very much worse in a fixed denture, and may become so bad as seriously to impair the health. Now it will not do for the dentist to throw the entire responsibility for such a state of affairs on the patient. His habits, disposition, as well as physical condition must be considered. If the dentist knows them to fall below the requirements, and has every reason to expect that ere long the denture will become the abiding place of fermentation and putrefaction, he has no right to jeopardize his patient's wellfare by inserting extensive bridge work. Here then is another limitation. Bridge work is not for the careless and filthy of habit.

Further, while bridge work as usually constructed is stronger than any other denture made, yet owing to its immovability, it is subjected to much harder service, and relatively is just as much, if not more liable to break. The porcelain facings are prone to check and fracture. When that does happen it is a serious matter. To remove the piece for repairs, can only be accomplished with difficulty, and frequently involves its partial or entire destruction. That this is a serious matter, and of not unusual occurrence, is evidenced by the frequent suggestions offered by experts how to make repairs in the mouth, none of which so far seem satisfactorily to solve the problem. Now, if this liability to fracture is reduced to the minimum by protecting tips and cusps of gold, as the custom is, the effect, when the denture and its golden piers are in sight, is simply shocking. To mar the human countenance with such gilded monstrosities may sometimes be justifiable, perhaps even unavoidable; but the patient's sex, occupation and facial characteristics may, on the other hand, be such as to absolutely forbid it. Here then is another limitation. Such conspicuous "high art" combinations of gold and porcelain are not for those in public occupations where success depends so much on agreeable personal appearance.

Again, the fact that in a true bridge replacing the six front teeth, the contour of the gum cannot be restored, and that by reason of the "self-cleansing" space considered necessary between the teeth and gums, articulation is necessarily imperfect, bars the use of this kind of bridge work for the orator and the vocalist. By a "true bridge," I mean where the porcelain substitutes are suspended between the piers and do not depend upon the alveolar ridge for support.

Another serious consideration is the strain put upon the supports whereby two or more roots are made to support, not only their own crowns but their neighbors as well. Where molars and bicuspids alone are involved, this objection may, in some cases, be more apparent than real, providing the denture has been constructed with a due regard to proper occlusion and a proper distribution and direction of the force of mastication. Indeed it is possible sometimes, by skillfully taking advantage of the anatomical conditions, to so balance the force of occlusion and so steady the supports themselves, that they are better able to stand the increased burden than they were originally. Where, however, cuspids and incisors are linked together, where the former, for example, support the latter, where the impact is outward or inward instead of in a straight line with the long axis of the tooth, the objection becomes very real, and only the strongest and healthiest supports will do. Now this limitation, one would naturally suppose would be accepted as an axiom for all cases, but when one sees statements made by enthusiastic advocates, men of standing too, that loose, diseased teeth can be used for supports, and that the quicker these teeth are bridged and crowned, even though abscesses be still discharging, the better they will heal, it seems to me the climax of disastrous advice is reached. The absurdity of this does not lie in the claim that loose, abscessed teeth will respond more readily to treatment when held firmly in position, but, in the assumption, that a superstructure built on such foundations, is likely to be a success in utility and durability. That an occasional case of this kind has stood the test of a year or two is not sufficient to wipe out this limitation. One swallow does not make a summer. Bridge work is not for mouths lacking in good sound, strong and healthy supports and plenty of them, and the dentist who fails to give this requirement its due consideration, is surely breeding trouble for the future. He will find that in more senses than one, "bridge work has indeed come to stay"—unfortunately, however, not with the patient.

Again, spaces, otherwise well adapted to be bridged, will often present themselves when only sound teeth with healthy pulps can be utilized for supports. As a rule, the mutilation or excision of sound teeth or the devitalization of healthy pulps simply to furnish supports for one or even more substitutes, is a piece of unjustifiable vandalism. I admit that this rule too may have its exceptions. I can even conceive of cases where the conditions might justify it. Given, an otherwise perfect denture with but one upper bicuspid gone, the space bounded on either side by perfect teeth, and I cannot conceive of any combination of conditions justifiying their mutilation for the insertion of a bridge. Given the loss of an incisor in such a denture, and I can conceive of conditions, such as sex, social exactions, or occupation, which might justify some sacrifice. War cultivates in its votaries a lessened regard for the value of human life. Bridge work may be said to have a tendency to cultivate in its votaries a lessened regard and veneration for sound teeth and living pulps, a tendency much to be deprecated. The problems presented are often very perplexing and difficult of solution, and the conscientious dentist must see to it that the deficiencies to be corrected are not overbalanced by the sacrifices required.

Further: Pathological tendencies are necessarily always present to a greater or less extent in pulpless and capped teeth and ferruled roots, no matter how thoroughly the diseased conditions may have been treated, or how skillfully the caps and ferrules may have been adjusted. This is especially true of teeth once diseased, and their condition is very much affected by variations in systemic conditions resulting in impaired health and lowered vitality. The tendency to a recurrence of disease in teeth once subject to inflammatory conditions being recognized, and that caps, crowns and bridges are foreign bodies exerting more or less deleterious influences, and that a high standard of vitality exerts a powerful influence in holding these tendencies in check, it follows, that the general health and vital tone of the patient becomes an important factor in deciding either for or against the advisability of this work.

Again: In view of the problematical durability of bridge work, the expense thereof rises to the dignity of a real objection. I have said "problematical durability," for while the system is based on correct scientific principles, its development dates back but a few years, and the question of durability still remains to be proven. In doubtful cases, the dentist has no right to trifle with either the confidence or the pocket of his patient. Only when the latter is fully posted, and is both able and willing to make the experiment, is he morally absolved.

To sum up: While bridge work in selected cases is unquestionably a most valuable adjunct, in its present stage of development its general adoption and universal application is limited.

First--By the high grade of mental, moral and manual equipment required on the part of the dentist.

Second--By the favorable physical conditions necessary in the mouth. This refers to the abutments, the width of space to be spanned, the health of the tissues, occlusion, etc.

And Third—by the health, habits, social and financial condition of the patient.

It is not the intention of this paper to discourage any one from studying and adopting the system. It is too valuable to be yielded to the very few of exceptional attainments. The object, as said before, is simply to call attention to its limitations, its difficulties, that thereby it may be approached with the care, caution and intelligent appreciation of its requirements, that it should have. The system is still in its first phase of evolution. It is growing and gradually widening its sphere of usefulness. Methods and appliances will unquestionably be devised to simplify and overcome acknowledged difficulties. Until then let not hot enthusiasm obscure cold judgment. Let discrimination attend its use.

THINGS OLD, NEW AND USEFUL IN THE OPERATING ROOM.

BY DR. A. C. HEWITT, CHICAGO, ILL.

"Things old, new and useful in the operating room," broad enough to inspire a book, has not led me to that attempt. In the little I have to say I have avoided the topics named in the programme assigned to others.

Begging, therefore, the indulgence of the sages of the societies, I will address myself chiefly to the younger members of the convention, saying something about detergents, antiseptics and obtundents. Not at all in a scientific way, but formulating some substances, "things" that I have found useful in everyday office practice.

Clean, soft hands, whether old or new, are still useful. The successful busy dentist must sometimes handle flask, file and forge; he must occasionally hold the crucible, the die and the scraper; he must sometimes grind at the lathe, and polish at the buffer. His hands get soiled. Soaps? Yes, if scentless, or at most, of the daintiest odor. These will not always whiten. The following is excellent:

℞ Pulv. Acidum Boracicum	lb. i
" Sodæ Carb	lbs. ii
" Pumice	lb. i

Glycerine q. s. to form paste.
Sig. Use as a soap.

If hands are stained as with nitrate of silver, wet the stains and rub with cyanide of potassium, then wash. Never apply soap first as that sets the stain. This paste is searching in action. An emollient should follow, and as perfumes are not always agreeable to the patient, especially in the mouth, nothing is better to soften, smooth and render the hands agreeable than the following lotion:

℞ Fowler's Solution.	
[Liq. Potassæ Arsenitis]	Fl. ℥iv
Glycerine	Fl. ℥iii
Bay Rum	Fl. ℥xvi
Aq. Pura ad	Fl. ℥xxxii

Sig. Lotion for hands, face, etc.

After washing with the paste and drying with a towel, moisten the hands with the lotion and let it evaporate. In making this lotion use only the best of bay rum; that distilled from the bay leaf, not bay oil and alcohol. Keep it from your wife and daughter or be prepared to furnish it to them. Once having learned the value to face, hands, arms and neck, they will give you no peace till they have a supply.

ANTISEPTIC SPRAY.

Operators run great risks from working over patients suffering from la grippe, catarrh (nasal), incipient diptheria, scarlatina, not to mention syphilitic taints and tuberculosis. If a hint of any of these is present, before operating some precaution should be taken. A spray prepared to be used from the atomizers of the drug store is of special value, prepared as follows:

℞ Antiseptic Pastilles (Carl Seiler's formula, Pastilles)	i. ss
Aq. Pura	℥i
Sol. Hyd Chlor. Cocaine 4%	℥ss
Glycerine ad qs	℥ii

Sig. Use as spray.

Crush and dissolve the pastille first in water, boiling water is quicker, then add cocaine. It will turn milky and cloudy. Add glycerine, which will immediately make the liquid clear. Spray nose, mouth and throat, and you will be safe. This spray is admirable to benumb sensitive gums, before using the gilling-twine to hold rubber dam in place. It is exceedingly useful also in allaying irritability of soft palate in taking impressions.

A convenient way to make and keep a 4 per cent solution of cocaine, is—

℞ Hyd. Chlor. Cocaine	grs. xxxviii
Glycerine	ʒii
Aq. Pura ad	℥ii

M.

Thus prepared and covered from the light the solution will keep an indefinite time.

An admirable, safe, efficient cleanser of instruments antiseptically is hydronaphthol. I am indebted to Prof. Harlan for the suggestion that has led to the use of this valuable drug.

℞ Alcohol..ʒii
Hydronaphthol...............ad. ....grs. xx
M.

Put into a wide-mouthed bottle—as a quinine bottle. Dip your instrument, whether excavator, forceps, searcher, or pyorrhœa blade, into the liquid, and lay away to dry. The most delicate steel will not be tarnished by it and it needs no wiping.

Hydronaphthol as a dressing to septic root canals has few equals in value. I think there is nothing superior or more convenient :

℞ Ol. Caryophilli...
Ol. Cassia aa...Fl. ℥i
Hydronaphthol...grs. xx
M.
Sig. Antiseptic for root canals.

Again, thanks to Prof. Harlan for the suggestion leading to the formula.

Eucalyptol (Sanders & Sons Eucalyptol e-fol, do not mistake oil of eucalyptus wood for the foregoing).

If you wound your hands and fear blood poisoning, at once apply the eucalyptol, and cover with chloro-percha, and you will be safe. If for any reason you wish to extract a tooth and replant (to trim a node causing neuralgia, or to remove from a foramen a broken broach), after extraction holding the tooth in the forceps dip it in eucalyptol, trim and smooth the root, enlarge the root canal through the foramen, fill the canal, redip the tooth in eucalyptol, put it back into its socket, driving it well home, and you will tire of waiting for suppuration or root absorption. On no account touch the tooth with water, and if possible keep the socket free from saliva. Replant through the fibrinated blood that lies in the socket. In my surgical practice I have learned not to apply water to any wound except where demanded for removing dirt. Blood and serum, kept aseptic, are nature's provision for healing by first intention.

OBTUNDENTS.

There is so strong a desire on the part of the patients for "painless dentistry" and such a stress on the part of the operator to avoid giving pain, that I think I may be pardoned if I occupy some of your time upon this subject. Quacks (and unfortunately we have them in our profession) advertise obtunders both for sale and for use. I have taken some pains to investigate some of these compounds, they being furnished by sample. That some of them possess the property of local anæsthetics cannot be denied. And I have found that just in proportion to the effectiveness of the drugs the mixtures contain more or less cocaine in one form or another, even though advertised not to be made from any of the derivatives of the coca plant. So strikingly has this been the result of my experiments that I have been led to compound an obtundent. The result has been most gratifying. My chief reliance has been upon the hydrochlorate of cocaine. Before giving you the formula that I employ I will detail a case or two by permission of my patients. Miss May Cleo Smith, D. D. S., of Kenosha, Wis., had a left superior bicuspid root that she wished removed. Gas? No. ether or chloroform? Emphatically no. I suggested my obtundent. "Yes, she would like that if I thought best." Her willingness and the growing pallor of the mouth and lips induced me to try it. I applied it in a way I shall describe, and removed the root, by no means an easy operation. Process and tissues were as firm as her will. I will describe the operation that you may the better judge: Using a sharp-bladed forceps I thrust the outer blade along the root under the gum over the unabsorbed process, cutting my way to the point I judged sufficient. I passed the inner beak over gum and border that I might get a sufficient hold for traction. After the root was removed she expressed the utmost gratification. She said "it did not hurt, though I expected it would." "I want your formula if you will favor me." Not a nervous person (hysterically), but of a fine organization capable of suffering, clear headed, conservative in her character, her words are weighty.

Mrs. ———, wife of Rev. Dr. ——— of the —— Presbyterian Church of Chicago, had several teeth extracted, preparatory to a full upper denture. Averse to anæsthetics, she yet readily assented to the obtundent. I think seven teeth were to be removed. "Between times" she unaided leaned over the cuspidor and freed her mouth of blood. After the teeth were out she expressed the utmost satisfaction. To repeat the substance of her words: "That is better than gas." "I could feel the forceps grasp the teeth, but it did not hurt. I kept expecting it would hurt, but it was painless." In this case I gave from the mouth of this bottle (exhibiting) about four inhalations of chloroform. She was not aware that she was taking the anæsthetic. By the same method, as in the last case, I extracted for another lady three solid roots, one a superior canine, and a canine tooth. The latter broke at the border, and I had to "reach" for the root. After the operation the patient, a large strong framed woman, said: "Oh that is delightful! I am going to tell Mr. ——— who has teeth to extract, no need of gas." I might add case after case to the same purport, but the above are sufficient.

The relief from shock, the help to operator and patient, has led me to its permanent adoption. I give you the formula and my mode of application. Perhaps the eminents in our profession may suggest an improved formula. I certainly should receive suggestions with much gratitude. I have been not a little perplexed to find a name that is at once suggestive, explanatory and honest. For want of a better and for the present I will name it

COMPOUND COCAINE PIGMENT.

℞.—Cocaine Hydrochlorate	gr. cxx
Atropinæ	gr. $\frac{1}{10}$
Strophanthin	gr. $\frac{1}{5}$
*Hydronaphthol	gr. x
Ol. Caryophilli	ʒii
Ol. Cajuputi	ʒii
Glycerine.....ad	℥i

M.

Sig. Use with applicator as local anæsthetic.

The cocaine should be in characteristic prisms (of the smaller rhombic system) and clean crystals, as that sold in fine powder is often adulterated with morphine and other substances to give it weight. Pulverize the cocaine before mixing to hasten solution.

In Prof. Ingal's work, "Diseases of the Chest, Throat and Nasal Passages," is to be found a formula for local anæsthesia, which is as follows and which I give by his permission:

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* In reply to a question Prof. Harlan suggested Betanapthol as a better drug for the purpose. Upon investigation I agree with him, and with thanks to the doctor advise the change.—A. C. H.

℞.—Atropinæ	gr. $\frac{1}{10}$
S. Stropanthin	gr. $\frac{1}{5}$
Cocaine Hyd. Chlor	gr. xx
Acid Carbolic	gr. x
Ol Caryophilli	min. iii
Aq. Dest. ad	Fl. ℥i

M.

Sig. Local anæsthetic.

Dr. Ingals informed me that the formula had been used under copyright, advertised for "painless dentistry," etc. The right to use sold at large figures, etc., etc. He also said that he deemed it safe as a "hypodermic" to the extent of five minims, and that its local anæsthetic effect was marked and reliable.

A good way to apply the "Pigment" is, first bathe the gums surrounding the teeth to be extracted, with alcohol and hydronaphthol to remove mucus and all foreign substances from the gums and membrane surrounding tooth neck and roots. This is important. 2d. With warmed wax or modeling compound take an impression of the teeth or roots. Remove from the mouth and slightly enlarge and deepen the impressions of the several teeth or roots to be drawn. Place a small pledget of absorbent cotton dipped in the pigment in the enlarged tooth and root impressions, and carry to the mouth, which, after the alcohol, should be made as dry as possible. Press firmly home and hold there from four to ten minutes. Three things are essential to success; clean gums and necks of teeth, absence of saliva, and close contact by the mixture. Do some of you say, "That is too much fuss, too much nicety of preparation?" To such I reply, do not use it, you will fail. No one will succeed in any operation in the largest sense without minute care at every step. The minuteness, the care, or their lack, mark the difference between the skilled operator and the bungler.

This brings me naturally to the consideration of a "thing" and "object of thought" more sinned against, more abused, a substance in the hands of the unskilled and the reckless, as dangerous to human life as prussic acid, or dynamite, but used properly, legitimately, as safe as the odor from the heart of a rose. Neither "new" nor "old" strictly, in a general way known to everybody, but scientifully as little mastered both in substance and action as the nebulae of the milky way—chloroform, the king of obtundents. I use the word obtundent rather than anæsthetic in speaking of chloroform in this connection, because it seems to limit its use to a degree less than is commonly attached to chloroform. Please remember that I am not using terms with exact meanings.

I shall not abuse the privilege of this convention by attempting a learned discussion of its discovery, manufacture, purification, chemical components, nor of its mode of action as an anæsthetic, its toxic action, nor of the modes of restoration to be used when an overdose is given. With all these you are doubtless as familiar as I am.

The more clearly to define my attitude in relation to chloroform as an obtundent I wish to say that there is not in all the range of operative dentistry, and in the demands of oral surgery there are but four to six operations demanding or justifying its exhibition, to complete anæsthesia. The obtundent influence is ample. So well convinced am I of this, that I do not hestitate to say that in case of death under the hands of any dentist (not skilled as an oral surgeon and supported by skillful medical counsel) indictment, conviction and imprisonment would surely follow if a thorough, intelligent prosecution were pressed. Under no circumstances is a dentist justified in fully anæsthetising a patient for extraction of teeth or for the minor operations of oral surgery. An incident occurred to the writer of this paper while he was a medical student aged about twenty-two years, which made a profound impression. A right inferior molar became painful beyond endurance. Under the obtundent influence of chloroform he lanced the gums, as was then taught, and extracted his own tooth without pain. Since that time he has availed himself of its beneficence with growing wonder at each recurring miracle. His faith has grown until it has become a verity. During a somewhat lengthened practice never an accident, or an approach to one, has occurred, so far as he knows, though used many thousand times. As a result of careful study and extensive use, he does not hesitate to commend its general use always as an obtundent. (Please observe the emphasis of that word.) When given, as I shall describe, it is safe for the young and aged, the robust and feeble, the sick and the healthy, the nervous and the stolid. Even the insane yield to its charm with a delight that is pathetic to witness. Thus used as a temporary alleviator of pain, however, intense, chloroform has no known rival.

HOW ADMINISTERED.

Having tested almost numberless devices, from a sponge to an elaborate machine, I have chosen a means so simple as to be almost ludicrous. A wide-mouthed half ounce to ounce bottle. An ordinary morphine bottle is as good as any. Any glass bottle two and one-half inches high, an inch and one-half diameter, with mouth three-fourths of an inch across will do. Of course it should be *clean.* If the chloroform is to be kept in the bottle after administration the cork or stopper should be hermetical, and the bottle wrapped in dark paper, and kept in a dark place. The chloroform should be pure, never of a doubtful manufacture. No preparation of the patient is necessary, except that an empty stomach is to be preferred. Or if the drug is to be given soon after a meal, the food should be light in quality and quantity; otherwise if the *obtundent* effect is pushed to, or near the anæsthetic line, slight nausea may supervene—the only ill effect I have observed even with the stomach overloaded.

Place not to exceed a teaspoonful of chloroform in the bottle. With it open, place it near one nostril of the patient, nearly on a level with the nose, remembering that the vapor of chloroform is heavier than the atmosphere, and the narcotized air tends to fall. Compress the opposite nostril, and direct the patient to take long steady inhalations across the bottle's mouth. Do not tolerate spasmodic or jerky breathing. When an inhalation has occurred, remove the bottle so that nothing exhaled shall enter to contaminate the chloroform. At first the bottle should be distant enough for only the faintest odor to be detected. At no time near enough to irritate the fibrillæ of nerves spread out upon the Schneiderian membrane, the throat and lungs. Do not *give peripheral nerves a shock.* The medulla oblongata lies closely contiguous, and will respond to the irritation all too readily. Remember that the nerves of the mouth, of nose, throat and lungs in their ultimate distribution, if on a plane, cover a space of twelve to fourteen hundred feet all readily accessible to the narcotic laden air. Nerve impulse largely controls the sanguinous circulation. The blood readily absorbs the drug, and its globules roll over each other to the heart, to be sent out to brain, viscera and ganglia.

Again I say avoid shock—the first, more common cause of death from chloroform steal over the peripheral sentinals, so gradually, so warily that they shall not fire an alarm to trigemina and medulla. As the long, regular breathing goes on, the bottle can be neared, till stronger vapor is taken. Presently the eyelids will begin to droop or "wink lazily;" the muscles somewhat relax, and an *obtundure*, if I may coin the word, creeps over the nerves. In such a state I extracted my tooth, and in such a state I have for others taken many, many teeth (too many I now fear). In such a condition patients will submit to merciless cutting or drilling sensitive dentine. In this condition can the drill or bur be carried to the live pulp, and the pulp be amputated, and afterward the patient will say, "I knew what you were doing, but it did not hurt." In the case of children they will sometimes moan and cry out, but after the restoration express no resentment, and all dread of subsequent operation is dispelled.

You will ask, in what way does your mode differ from the ordinary? I answer, in the avoidance of shock, by giving large volumes of air carrying and attenuating the narcotic and stopping short of full anæsthesia. To show how different the line of procedure, I wish to quote from Vol. III., American System of Dentistry," page 109, under the head of "Preparation of the Patient" (for inhaling chloroform), the writer says: Owing to the irritant effect upon delicate cutaneous surfaces of chloroform when contact is close and constant, the face of the patient especially about the mouth and nose, should be anointed with some fatty substance as a protective shield."

I do not hesitate to say that an operator or surgeon, whoever under any circumstances should apply chloroform so closely and continuously to mouth and nose as to require an unctious shield, is no more fit to give it or to teach others to administer it than is a child to play with matches in a powder house.

Since writing the above the April number of *The Dental and Surgical Microcosm* has come into my hands, wherein I find my views ably supported. Dr. J. R. Simms speaking of Anæsthetics says "A true anæsthetic should not produce any irritation of the epiglottis, bronchial tubes, or pulmonary membranes. Dr. Hays, of Pennsylvania advertises in the same number an apparatus whereby he measures the per cent of narcotic in air, and begins with one per cent of chloroform and increases gradually and "scientifically" (?) till narcotism is produced. It may be classed as "New" and I am inclined to think it "Useful" and if there were no other and simpler way of safety it would be cheap at $70 for the lease of it during the life of the patent.

Is the way I have described safe and efficient as an obtundent, and practical for daily operative use? I answer with all the emphasis at my command, yes, yes.

The Rev. Dr. Lawrence, the eminent divine and pulpit orator of Chicago, says of it after an operation upon exceedingly sensitive teeth, I give his words over his signature by permission:

"I have carefully watched the effects upon myself of the use of chloroform while undergoing dental operations. Of course I know that the application was not such as to be a full one. I have been conscious most if not absolutely all of the time, and yet I have had no pain, and what was better no fear of pain and consequently none of that frightful nervous strain which is really more trying in the present and the future relation of the patient.

"In all cases I have not detected the slightest ill effect upon any function after leaving the dentist's chair, on the contrary I experienced a physical sense of comfort and relief.

"I was in my childhood prejudiced against all anæsthetics and especially chloroform. I tried the experiment because of my nervous sensibility and with reluctance and close inspection of every symptom. My experience has in my case fully justified and commended the application."

(Signed) Wm. Lawrence.

Dr. Homer M. Thomas of Chicago, a gifted writer, lecturer and practitioner of medicine and surgery, permits me to quote him as giving hearty approval of such a use of chloroform.

Dr. E. Fletcher Ingals, of Chicago, professor of diseases of the throat and chest in Rush Medical College and in the North-Western University Woman's Medical School permits the use of his name in endorsement in such a use of chloroform. He says:

"Having witnessed two deaths from chloroform, I was naturally averse to its use in dental operations upon my family. However, yielding to the request of my wife that she might take it, and trusting to the care and experience of our dentist, I consented to the careful use of chloroform in this way, not only with her but with my children and I am greatly pleased at the result. The operations which formerly caused the most intense suffering and dread are in this way easily borne and satisfactorily finished.

"I am greatly interested in this method of using this anæsthetic and have for years advised a similar plan which I first saw recommended by Balfour for the relief of the agony of angina pectoris. Thus used it appears perfectly safe, but I confess myself surprised to find it so effective in preventing pain."

During more than twelve past years at my office on Adams Street I have thus administered chloroform as an obtundent to all sorts of patients, if I may thus describe them, with no other ill effect than the slight nausea that I have described. I cannot truthfully claim immunity from ill results of operations where no obtundents have been permitted. Shock and nervous illness have followed many times consequent upon operations when from prejudice I was not permitted its use, and that too, though I have long since learned the attendant danger and have gradually lessened the length of the sittings.

Two classes of dental patients call especially for avoidance of pain. Children from four years (even younger) to twelve or fourteen, and nervous persons, male and female, over that age. There are some persons of so stolid a make that they seem not to care for or fear any operation. They apparently have tendons for nerves, lymph for nerve fluid, adipose for peripheral, and cuticular ganglia. Some such have astonished me and challenged my credulity by saying, "That the extracting of a tooth did not hurt." "It does not hurt to have my teeth filled." But such cases, as you all know, are rare. By far the greater number of patients cringe at the first touch of an instrument to enamel, frightened before being hurt, moan and squirm at contact with sensitive dentine, weep and shiver, and grow hysterical, exhausting their own strength and that of the operator. It does not matter whether the suffering is imaginary or real. To the operator at least it is real. What operator is there that has not had his sympathies awakened by the child patient saying, "Now doctor, will it hurt? Have you got to use the buzzer?" And from the older ones, who has not heard, "Oh Doctor, I like you out of your office, but I hate to come for work I hate your instruments. It just makes me sick." Who among you gentlemen have not, times without number, needed the poetized patience of Job while striving not to hurt, and accomplished little. But I need not dwell upon this. It is a more than a thrice told tale.

There is a view of this question that was recently presented to me in a forceful way. In a casual conversation with Rev. Dr.

Lawrence above quoted, it was claimed the dental profession was a long way in the rear of surgeons in the matter of the avoidance of pain in operations. The Doctor said: "Yes, it is true, you are not up to the level of surgery in pain avoidance. There is a brutishness of persistence in operating that in the public mind stamps the dental chair as a place of torture to be avoided until driven to it as a last dreaded resort.'' The charge is true. There was terse irony in it, a logic unanswerable.

What would be thought of a surgeon who in the light of to-day should perform laparotomy without an anæsthetic. You would all say he was a brute, and his operations, however skillful, brutish. We are amputating nerves, performing laparotomies on the bodies of teeth, disemboweling them, causing groans, entreaties, tears, shock often to syncope, sometimes collapse. Only week before last a young gentleman, on whom I was operating, fainted (having declined the help of chloroform). After resuscitation was complete, I said, "This will not do; if I operate for you, you must take chloroform, else I shall decline to serve you." "Is it safe?' "Yes, unsafe without it." "Then I'll trust you." From thence to finish the operation was painless, but consciousness was not for once suspended. On leaving the office he, with a pleased look, said "Doctor, next Monday I'll take the chloroform, it does not hurt." Whether he referred to the anæsthetic or the operation was not explained. In the case of children I absolutely refuse to operate painfully. Our profession does not demand baby torture.

Are there then no obstacles to the general adoption of the advocated practice? Yes, we have to sail under false colors, or meet a prejudice in the public mind whenever chloroform is named. It is no easy aversion to allay. It is founded upon recorded deaths from anæsthetics all too numerous, in Chicago and New York so recent as not to be forgotten, but I do not hesitate to say, needless deaths, caused by shock easily avoided, or by excessive anæsthetization. This prejudice, however, can be overcome by use of facts easily demonstrated. Clearly to my mind this should be done, or other means as good or better, sought out and adopted. There is surely in such a body of men as is before me, learning, skill and forcefulness sufficient to such an end. May the time soon come when the seekers for our skill and aid shall not be hindered by dread of "torture;" when to the gentle courtesy and dignified suavity for which our profession is becoming noted, shall be added the charm of skilled and distinguished tenderness; when we can advertise painless operations, not by flaming posters and staring headlines, quackishly and unethically, but by quiet unpretentious putting aside prejudice, by tender humanity, by acts which are benisons, by works which are so beneficent that we may clothe our offices with kindliness as ennobling to ourselves as it is inviting to our beneficiaries.

THE NECESSITY OF A UNIVERSAL DENTAL NOTATION.

BY HANS BLOCK, DRESDEN, GERMANY.

Only a few months more and the World's Columbian Dental Congress which will gather delegates from all civilized countries, will consider the subject of Dental Notation, and probably establish a standard which may last for centuries. In order to become aware of the extreme importance of such an event we may open our considerations with the utterance of a profound thinker who declared, "Though we may love our own vices, we do not generally love the vices of our neighbors. Mankind at large has far more virtue than vice. Evils are constantly diminishing, but solely by the activity of the human intellect. The greater the contact between nations, the greater the respect. Hence, it is that, among the innumerable benefits derived from advancing knowledge, there are few more important than the improved facilities of communication which develop the boundless resources of the human understanding."

This dictum shows plainly the intimate bearing which every congregation of scientifical and international intercourse has upon the advance of knowledge, ethics and morality, and as such intercourse receives its immediate furthering by a rational system of nomenclature and notation we are encouraged in our discourse.

Nomenclature is like a mint where, before they are delivered to public circulation, the treasures brought to-day receive a coinage which explains their value and tenor. Without the coinage of a proper name the treasures of science would have a difficult passage as they would meet different interpretation, and in spite of the most prolix wording there would frequently arise nothing but confusion.

Nomenclature which means uniform denomination is intended to avoid this confusion. It is the uniformity which secures clearness of understanding as descriptions, bare of systematic nomenclature, season multiferous apprehension. On the other hand also, the necessity to avoid circumstantial clauses for conveying one idea developed the canon of expression which forms the vocabulary of nomenclature. Especially for the description of localities it became compulsory to accurately designate them by single words, and also not to give the same name to two different places, otherwise the right place might be missed. Since this necessity has been comprehended, geography and anatomy, which is the topography of organic bodies, have improved egregiously in clearness and it is by mere words, without the assistance of any illustrations, that we can now impart morphological ideas. The mind, so to say, replaces the eye and that is a decided progress.

In modern times has this desire for uniformity in denomination become universal because its practical usefulness grew too apparent, and it is the aim of the scientific circles to introduce uniform terms, or (where that is impossible) uniform principles, in the languages of all nations to facilitate the mutual intercourse.

The time may even approach when besides a universal time and universal measurement, weight, stamps and money, we shall have a universal language, but the poor make of the so-called "Volapük" will certainly not be this language, because it is an ugly barbaric stuttering well adapted to roughen the mentality of its adherents instead of refining our faculties. It was the German philosopher, Leibnitz, who, in the last century, made the first attempt to compose "a language for all," (Allsprache) as he called it, as a medium for international confabulation without prejudicing any of the vernacular tongues. Since then it was tried repeatedly to create such a cosmopolitical idiom, but always without success, and the general demand has to wait yet for some gifted linguist who will redeem the thirsty minds.

At present we have to be contented with professional terms which are universal so that in every nation men of science can describe the same thing by the same word, or at least by clearly recognized terms of definite, unmistakable meaning. This universal wording called nomenclature permits of course, of improvements, for like all human work it has to run through three stages; first complicated and imperfect, then complicated and perfect, and at last simple and perfect, and hence also the congresses of the next century will find themselves engaged in reforms of the system of nomenclature.

The accessory link of nomenclature is notation, which means uniform abbreviature. Since the grey times of antiquity has it been in style to abbreviate familiar words, and f. i. over the cross of the young philosopher who suffered for the establishment of humane principles there were standing the letters J. N. R. J., for Jesus Nazarenus Rex Judeorum.

Notation is a further step in developing international intelligibility, but it offers, besides that, the other advantage of such economy as we find realized in shorthand writing, and hence is it an aid in study. For nobody can be expected to be a wandering encyclopædia, if such ability were at all desirable which is doubtful as it is more important to master general principles than to memorize single facts and figures. It is therefore only natural when we meet opposition to all tendencies which are liable to increase that material which requires memorizing, for there is danger of overburdening the student. This opposition should, however, not be extended on dental notation as the trouble which may be caused by its memorizing is so small that it will greatly be outweighted by the benefit of saving labor and time in making daily clinical records and the acquaintance with a practical method of abbreviation will be highly profitable to everybody.

Many thinkers and *bel esprits* have emphasized the value of keeping a diary as a means of self-education, and this may explain why among conscientious dentists the office record has become not only an indispensable source for reference but also a foundation for independent study. We are perhaps not remote from the time when for all physicians such records will be obligatory by law just as the ledger and bookkeeping is by legislation demanded from a merchant, for the interest of suffering humanity can, no doubt, be better sheltered by the busy practitioner who is the possessor of a record than without it. The stories about the marvelous memory which remembers everything, even after 10 or 20 years, will, as a rule, prove as the work of imagination, self-deceit, or self-glorification, when traced to their correctness. Besides, in the dentist's note-book, the lessons of the past are recorded and enable the original investigator to systematical pursuits which contribute to the general progress of art and science. Without a record the dentist sinks back into the class of indolent money-makers who are not interested in the benefit of the general public nor in the honor of the profession.

In an article on dental jurisprudence, by Dr. G. W. Sichel (see DENTAL REVIEW, February, 1893), the importance for maintaining a regular office evidence has so strongly been emphasized that it requires no further plea to demonstrate its usefulness. Dr. Sichel thinks also of the value of such records as a means of identification and as a help in cultivating the appreciation of the patients should they fail to realize the value and extent of the benefits achieved. But how can such records best be sketched, if not by means of a good notation ?

There is, of course, no objection against having an own private stenography, but when we consider that the international notation will be the result of the combined efforts of MANY well-experienced men it is well justifiable to expect that their notation will be easier to mind and clearer to comprehend, also more exact and precise, more logical and graceful, in a word more handy than the weak trial of the single man who struggles to swim against the current. The older practitioners will perhaps be reluctant to leave their queer habits and to form new ones, for it "hurts" to reform one's self, but their conservatism will form no stumbling block for the improved method of terminology and abbreviature as—if they are not stubborn—they will approve it in principle and endorse it for the younger generations, to whom the future belongs. The number of those who are "old" or who concede themselves to be "old" will moreover be very small indeed, for as long as we continue to study, so long do we preserve eternal youth; only those who cease to learn are getting old. Therefore, a young man of 21 years who after his graduation touches no text-book any more and gets along "splendidly" without periodicals, who, in a word, turns his commencement into the conclusion of his study, he will in verity belong to the old and decrepit class, whereas a gentleman with 70 years of age who keeps abreast of the progressive journalism will be young and flourishing as ever. No fear, therefore, for the success of dental notation; only the veterans who are bare of strength will have no need for it! What a shame for him who would not join and would not learn the general way of writing; while he may be well able to understand his own notes he would be excluded from the professional literature as the public and universally adapted standard of abbreviature would be occult to him like hieroglyphs. What a pitiable spectacle would he present, being cut off from communication with his fraternity like the soldier who does not understand the signals of his regiment and gets lost.

It is true, our mnemonic chambers are already filled with numerous other symbols, for instance, in chemistry we have to deal with about one hundred of them and further with half as many in materia medica, and so the same in physics, mathematics, microscopy, etc.; we have furthermore to be acquainted with the official signs for the weights, measures and monetary validities of all countries, to say nothing of those many, many names aud expressions which in every branch of science constitute the outside frame of knowledge. To all these *termini technici* the indices of dental notation would have to be added. They do however not increase our glossary, as they produce no new words, but are merely signs specially selected for old terms which are or will be chosen as standard names.

So by a rational application of nomenclature and notation we shall be unburdened from many things which otherwise would have to be memorized and this will help to concentrate our attention on more important matter, which may enrich every member of the profession and promote progress. We shall also be better enabled to communicate with other nations and to take a share in their advancement, to show them our virtues and to profit by their example.

The uniformity in terminology has sometimes been reprimanded for creating a stultifying monotony, but this unjust blame can only be maintained by those who are suffering from the tapeworm of phraseology. Or is there any monotony in nature? And yet nature is our greatest model with respect to uniformity, as this is expressed by John Hunter who wrote: "Nature is always uniform in her operations and when she deviates is still regular in her deviations." Moreover how can a system, like notation, be stultifying and enhancing at the same time? Hence, Dental notation deserves the same appreciation as any other noble impetus which prevents intellectual decay as it assists to diffuse knowledge. The spirit of doubt which is a necessary precursor of improvement will hereby be abrogated from the profession in the aggregate, because dental notation must necessarily improve the circumstances under which the faculties come into play, so that every member may become an instrument of culture for which man has been created.

PROCEEDINGS OF SOCIETIES.

Chicago Dental Society.

Regular Meeting May 2, 1893, Dr. J. W. Wassall, President, in the Chair.

Dr. T. W. Brophy exhibited a patient showing the result in oral surgery practice.

SARCOMA OF THE NARIS.

Dr. T. W. Brophy: The patient I show you this evening was sent to me three weeks ago by a physician in Michigan for the purpose of having an operation made upon his naris with a view to removing a tumor. The patient was first treated under the supposition that the growth was simply a polypus, and he attempted to remove it with the snare. The attempt, however, resulted in such a profuse hæmorrhage that he discontinued the operation, presuming the patient was perhaps of a hæmorrhagic diathesis. In any event, he was one of those who bled freely on the slightest provocation. With that warning, I adopted a plan which would enable me to control the hæmorrhage in case it were profuse at the time of the operation. It was by the introduction of a strong silver wire into the nose, carrying it back into the pharynx, attaching it to a strong cord, bringing it back through the pharynx, and plugging the posterior naris. If we adopt this simple means of plugging the naris, using a strong silver wire doubled, and passing the loop downward, we can seize it with forceps as it passes down behind the soft palate, and draw it forward. Then attach to it a strong cord, remove the wire with the cord attached to it. A large roll of antiseptic gauze is in my judgment the best packing to be used in such cases; it should be attached to the end of the cord a piece about an inch and a half to two inches in diameter, when it may be drawn down into the pharynx and up into the naris. It will produce some difficulty when first carried back into the pharynx in the way of nausea sometimes, but when drawn up over the velum it will so perfectly plug the nose as to make the passage of blood or anything else down into the pharynx impossible. Having done that we are in a position to operate. The patient was then put under the influence of ether, a plug inserted, and the operation consisted of opening the nose on the left side where the tumor existed, carrying the incision back so as to turn the ala of the nose upward, thus exposing the growth, which I found to be in lobes of various sizes, and by the use of tissue forceps it was removed piecemeal as you see it in the bottle. The character of the growth I have only suspected, not yet having had an opportunity to submit it to a pathologist for careful examination. But it is a sarcomatous growth unquestionably, judging from the character of the tissues. While patients of his age are not frequently subject to malignant growths, yet such growths are possible in young subjects. That is a question yet to be determined. The patient's general health is very good indeed. He looks well and has a good color. His general condition has greatly improved since the operation, for some portions of the tissue were sloughing at the time of the operation, and the local condition was such as to materially affect his general health. There was more or less absorption of the decomposing tissue, which of course affected his health to some extent, giving the pallid look of a person in the first stages of pyæmia. There has been very great absorption of the septum of the nose, and it is driven to the right side a great deal, by the pressure of the tumor. The wall of the antrum has also been absorbed to some extent, also the hard palate. It necessarily would be so with such a great quantity of tissue as that which filled his nose from the anterior to the posterior naris, and when he opened his mouth it was seen to be passing down into the pharynx. The condition was first observed no doubt from the fact that it interfered with his articulation to some extent and with swallowing. The first day he came to me I removed quite a large piece of necrotic tissue which was hanging down into the pharynx. The patient's condition is very favorable, and I doubt not will do well unless the growth recurs. There is only one feature of the case upon which I am in doubt, that is, as to the actual character of the growth, and as to whether the antrum is involved. I admit there is some opacity when light is carried into the mouth, more marked upon the left side, and there seems to be tissue in the antrum of the same character. This opacity or darkness when the light is thrown there in comparison with the right side, may be due to the growth within.

Some one may say, what has this to do with dentistry? It has much to do with the oral cavity. It is a case wherein the antrum may yet be involved, where pressure upon the hard palate in due time, unless removed, would have produced absorption of the hard palate, have made an opening down through into the mouth, absorbed the bone, possibly have destroyed the alveolar processes, and might have resulted in necrosis of the jaw with destruction of the whole maxillary bone. So it has much to do with the dental organs, and is a typical case of surgery of the mouth as well as of the nasal cavity. These two cavities are so intimately associated, that it will be impossible for any one to separate the one from the other without having both to treat.

Dr. Brophy then exhibited his modification of Dr. Pierce's mouth-gag, and demonstrated its use on the patient.

ARTIFICIAL VELA FOR CONGENITAL CLEFT OF THE PALATE.

Dr. C. S. Case: About two and a half weeks ago I inserted an artificial velum for a cleft palate patient whose articulation was as imperfect as the usual run of persons having this deformity, but whose progress since, aided by the velum under the instruction of a vocal teacher, has been so rapid, and I may say remarkable, I have asked our president to allow me to present him to you this evening that you may see what may be accomplished, even in so short a time, with a flexible rubber palate made after the Kingsley pattern. Before introducing him I wish to make a few remarks. I wish to say first that the mechanical principles in the construction of artificial vela for congenital cleft of the palate is no more difficult than many or most of the difficult artificial dentures—providing, of course, one will follow the proper system. The taking of the impression, that great bugbear which has prevented so many from undertaking the operation, and for which so many unnecessary contrivances have been resorted to, I wish to say, is no more difficult or unpleasant to the patient than the taking of impressions for many partial dentures. After the pattern or model of the palate has been formed, the taking of the impression with the palate in position in the mouth for the final sustaining plate is not a difficult operation. The construction of casts also in which the soft rubber may be vulcanized and finished and come out in a perfect condition requires no special mechanical ability. The final operation of making a sustaining plate is the same as that which is required in making a gold or rubber partial denture. The particular part of the operation, if any, which does require considerable experience and skill, is the forming of the model or pattern for the palate. As no two cases are exactly alike in extent of cleft or peculiarity of it, in size or shape of pharynx, or in the development of the palatal and pharyngeal muscles, every one presents some peculiar feature that requires considerable judgment and ingenuity in the forming of the palate, so that the patient will obtain the most perfect use of it in vocal articulation.

When it is remembered that almost every word we enunciate requires in certain parts of it for its perfect articulation a complete closure of the naso-pharyngeal opening, it can be seen at once how difficult—and perhaps in some cases how impossible—it is for a person having this deformity to acquire anything like perfection in orthoepy; and how a surgical operation or an artificial apparatus of any kind is little better than nothing if it fails to enable the patient to perform this function in its completest sense. I am aware there are many people with cleft palates who, notwithstanding the fact that their tones are decidedly nasal, speak so as to be well understood, and in proportion as they have acquired the ability to imitate the particular sounds, which by the nature of the deformity it would always be impossible for them to properly articulate, or produce in any way, with the proper organs of speech. In order that you may fully appreciate the effort which I shall ask my patient to make for you this evening, let me first call your attention to some of the articulate sounds which are the most difficult for persons having a cleft of the palate to clearly and distinctly enunciate, and which give that peculiar characteristic to spoken language that stamps at once every sound in word or phrase distinctly upon the ear. I have never yet been fully satisfied with anything I have seen in print relative to vocal articulation that had special reference to persons having a cleft of the palate; nor any simple classification of sounds founded upon the possibilities of this deformity that would materially aid me in training my patients to talk after I had constructed an apparatus. Most every one who has written upon the subject tells us what sounds are difficult for cleft palate patients to make, that B, P, D, T, C, and V are often sounded as E alone, but they do not tell us why they are deficient in their most distinctive characteristic. Let me give you a few thoughts with a brief classification of vocal sounds and an explanation of some of the most marked features in defective speech, common to persons with this deformity, which I believe will appeal to you from a common-sense point of view.

Simple or uncombined vocal sounds may be divided, first into nasal and oral. The former comprise a very small part of our language and should only be heard when sounding combinations of M and N.

All other tones--which are classed as oral—*should* be made during a complete closure of the nasal passage; but it happens that a large portion of them can be distinctly articulated without this closure, though bearing the nasal tone. Therefore it is found that most persons with this deformity can completely enunciate all the vowels, nearly all the diphthongs and a large portion of the consonants. The remaining portion—or those sounds which it is impossible for them to properly make, because they absolutely require for their perfect enunciation a complete closure of the opening through the nose--are exceedingly important in speaking, in that they give distinctness and finish to almost every word we utter. These, then are the ones which should particularly engage our attention.

For the sake of convenience I shall divide them into two classes. First, those sounds which are made by a *continued forcible aspiration* of the breath through the mouth—characterized in one instance by a rush-sh-ing sound of air over the tongue or th-through the teeth; in another by a hiss-ss-ing or sharp high s-sibilant whis-s-tle at the tip of the tongue, and again when it is intoned by the vocal cords as in sounding z in zebra.

The second class comprise those sounds which require a *complete arrest* of the breath compressed for an instant in order that the sound may be suddenly and forcibly exploded by an accumulated effort. This explosion may take place by a sudden liberation of the sound from between the lips, as in sounding B and P; or from different points of the tongue—commencing at the tip and going back—as in sounding Th, T, Tah, D, Dah, K, Kah, Go, Goh; but whenever it occurs the initial and indispensable part of it is the complete arrest of the escape breath from every point up to the very moment of explosion.

In both these classes of articulate sounds, will a person having a cleft of the palate fail in proportion to the force of breath which each sound requires for its complete and perfect enunciation.

In connection with these two classes of sounds I have found also that a patient commencing to talk with an artificial palate will fail in those words which require a rapid movement of the tongue, as in saying silly, because it has become cumbersome and unwieldy having been used up to this time principally in closing the opening to the nares in the efforts at imitations, and has not acquired that mobility of movement which will come in the manual training of articulation when it finds this is no longer necessary.

With these few and very abridged remarks upon this subject I will now introduce my patient, Mr. Charles Dalton, who is nearly 18 years of age. I shall ask him to repeat after me a few sentences that have been chosen with the view of combining all of the most difficult articulate sounds. I shall have him do this with his artificial palate in position and then after it is removed, that you may the more perfectly observe the difference.

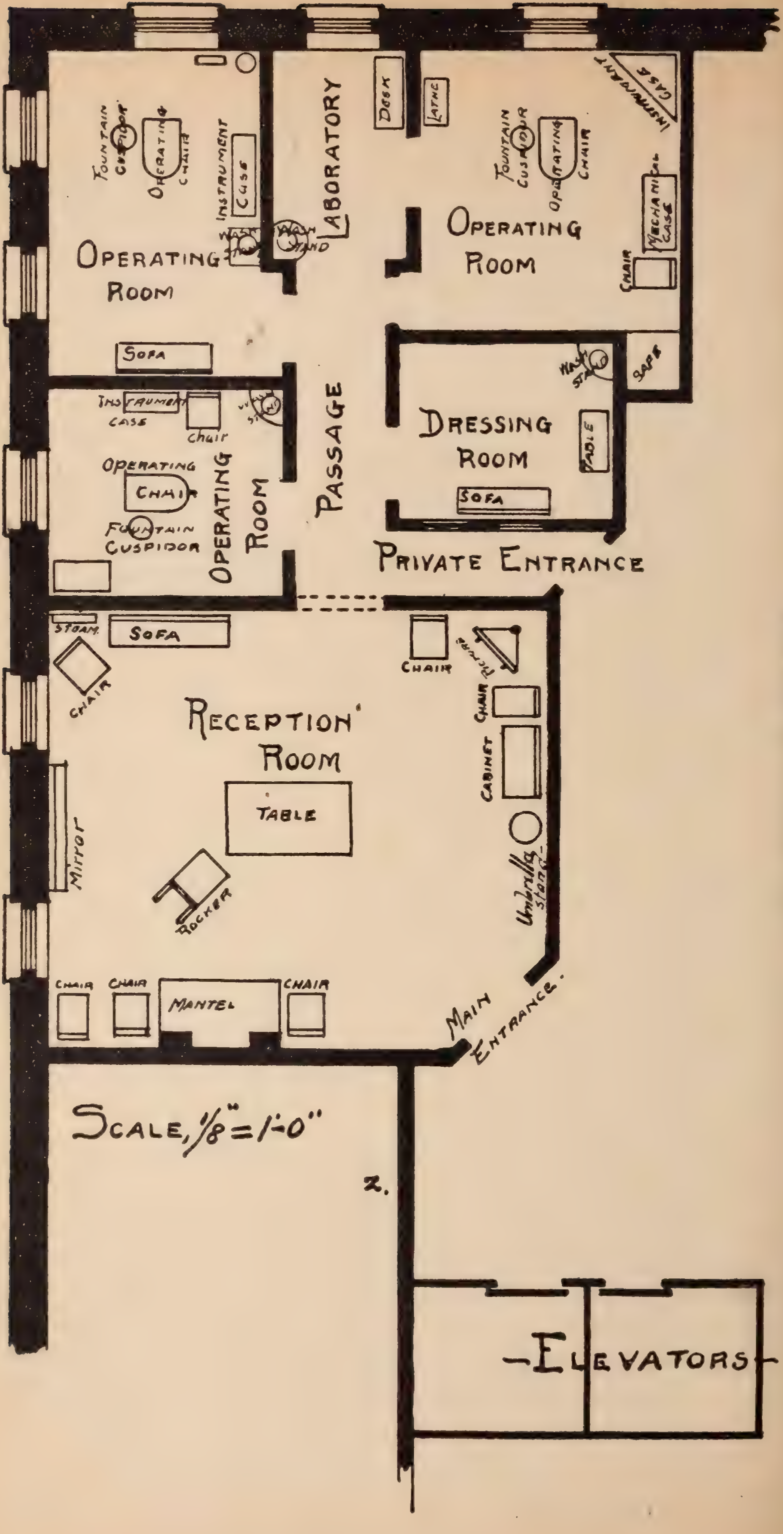
Dr. Case then exhibited the patient, and asked the members of the society to give the patient sentences to test his articulation with and without the artificial velum. The patient's articulation and tone with the artificial velum in position was remarkably perfect, while without it, it was indistinct, nasal and decidedly imperfect.

The society then proceeded to the discussion of some features of an ideal dental office. The discussion was opened by Dr. T. W. Brophy, who considered the

PLAN OF ROOMS AND ARRANGEMENT OF FURNITURE.

Dr. Brophy said: When Dr. Wassall, our President, asked me to present to you something of my views of what a dental office should be, I thought it would be an easy matter to get something together, but the more I studied the different offices the more confused I became, and so finally I made up my mind I would simply make a diagram of my own office to show you, and make some suggestions in regard to some slight improvements I would make if I were going to build an office again. The office I now have was made out of a big loft originally, which gave me an opportunity to plan it as I desired. It was built according to my views. The diagram which I show you of my office is perfect in its appointments, but it has many defects.

The first consideration in a dental office should be the admission of light. It is more important than anything else about the office—how to admit light, how to tone it down to best serve our purpose. I have on a previous occasion, only a short time ago, presented a paper on the subject of light and its uses in dental offices, and I have nothing to add to it. I might repeat some



DR. BROPHY'S ROOMS.

things I there stated, because it is appropriate at this time. My preference of light is to have a south window to admit it, although an east window serves the purpose well, but not quite so well in my opinion. Light should be admitted so that the dentist may have the benefit of the sun's rays. He needs it. He is in the office nearly all the time and he needs sunlight for the benefit of his general health. Besides, it is a direct light. The rays of light can break upon the field of the operation which we are to perform. Our chair should be so adjusted that the rays of light will immediately come upon the point to be operated upon. If we are operating below we need to have the patient more nearly upright, if back of us the light will strike the field of operation direct. If two windows open into the same room one should be closed with shutters so as to admit light only from one direction. Light for a dental operating room should be so fixed that not more than three or four feet at the most should be employed at any one time. The window may be from three and a half to five feet wide or wider, but the space between the upper and lower shade should be always controlled so as not to have more light than necessary. The dentist who uses more light with broad windows and cross lights from different directions is sustaining an injury of which he is not conscious. His eyes are suffering as a consequence. I have injured my own eyes in years gone by, by a lack of knowledge in the application of light.

The next consideration should be the general appointments, and an important point is the operating room. The reception room is for people who come and go, but the operating room is where the dentist lives, so to speak; where he spends his life, mostly engaged in his occupation; so then it should be a room of good size. It should have convenient furniture, and should be large enough to admit not only his patient, but one or two others without being at all crowded, as, for instance, the parent who comes with the child, or others who come with the patient to have the operation performed. The operating room should have conveniences for seating them comfortably, reading, or whatever they desire.

Another important feature of the dental office should be a proper entrance for the dentist. He should not pass through his reception room on his way to his operating room. I regard this feature of great importance, for many times the dentist will have people in the reception room whom he does not care to spend any time with. As soon as he enters he is accosted by two or three persons at the same time and thereby loses a good deal of time. He may find persons in his reception room who either want to sell him books or insure his life, and he does not want to see such persons. By entering the operating room you can take the patient with whom you have an appointment and do what work there is to be done, and while the office girl is attending to the others you can occupy your time to your own advantage with those who have honestly engaged you with the expectation of having you perform your part in devoting your time to them. The dentist ought to have his operating room, his assistants and laboratory so arranged that they will not have to go into the reception room at all in passing from one room to another. It is a matter of great importance. If he desires to have an office where he can see people on business, it should be aside from the reception room. By so doing he will save an amount of valuable time.

The sketch which I now show you has been rather hurriedly made. It gives an outline of my own office rooms as I planned them. As you see, it is arranged with a reception room, with three other rooms, and a private entrance to the outer hall, so that the dentist need not necessarily pass through the reception room in going out and in. Sometimes, if you are exceedingly busy, you have run over time a little while you want to go out to lunch, and if you go out through the reception room some one may accost you and say, "Can't you see me for five minutes?" You answer "yes," and by the time you are through with that person there may be another one who will want to see you for another five minutes, so you will have to go without lunch. It is not the right thing for any dentist to go without his lunch. I think any other professional man can do without his lunch better than a dentist because he is shut up in his office. If he goes without his lunch off and on, in a few years he will find himself suffering from indigestion and other things which he will not rid himself of very easily.

I prefer to have my operating case on my right side, so that I can get almost anything from it without moving. (Here Dr. Brophy demonstrated the position of the operating case as well as that of the dentist.) Everything should be kept in its proper place and not scattered around in a haphazard manner, and by so doing you can take any instrument you want without moving away from your patient. It is well to have the wall near enough to the chair so as to admit of the operating case and give a liberal space between it and the chair. I do not like a square room unless you have the case so fixed that it will stand out in the room. If you have it against the wall it should be the right side, and the wall should be near enough to have the case back up close.

Water should be in every operating room, so convenient that the operator can get it without any difficulty.

The electrical apparatus, rheostat, the adaptation of the dif(ferrent) instruments is a matter of great importance to the dental office. The electric light should be used a great deal more than it is. Without the electric light I might feel positive that the antrum in the case I showed you this evening was in a healthy condition. But as it is now I do not think it is. I believe the growth I found in the naris has also involved the antrum, and that a subsequent operation will be called for. It can be determined by an exploratory operation, which I do not think is really indicated here.

Electricity in the way of drop lights adds much to the convenience of the dentist in making examinations. The reflection of light into the mouth, and the use of the cautery wire in the drying out of root canals are convenient. Dr. Woolley has done a great deal for our profession in perfecting an apparatus for the drying of root canals, but the actual cautery applied by the electric current serves our purpose even better as we can control the heat.

Ventilation is another feature that ought to be considered. Most offices in the center of the city are poorly ventilated, unless special care has been taken to have ventilators made in chimneys and openings. I find that some offices in Chicago are so poorly ventilated that the air is really stifling, especially where some heat is applied, and there is an absence of flues for carrying off the heated dead air, so to speak. In taking that into consideration, in the offices I now occupy I had a flue carried from my reception room, made of tin, out through the partitions into the chimneys. This flue which passes through the mantel and out and keeps a good circulation of air in there all the time. I had openings made into the chimneys with chains leading from the chimneys down, so that I could open and close them at will, and also openings at the base to be opened in the winter, and the openings at the top in the summer. This is a principle generally observed in ventilating buildings. We need to have two openings, one for the summer, and another one for the winter.

Just a word or two more in regard to ventilation. I desire to make reference to one desirable feature of ventilation which I adopted. I had a heavy piece of plate glass framed, about eighteen inches or two feet high, placing it inside of the window. When the window was raised the air would come in and pass upward and not bring the draft direct on myself and patient. It is so efficient that I feel like mentioning it now.

ELECTRIC POWER AND LIGHT, AND ELECTRIC CAUTERY AND THERAPEUTICS.

Dr. Thos. L. Gilmer: As this subject is so large I must necessarily treat it in a most cursory manner considering the short time allotted me.

It is unnecessary to make the statement that at the present time no dental office is really complete without some sort of power, and it is hardly necessary to use argument to convince you that the very best power the dentist can use is the electric power. There is no labor-saving device employed by him which saves him so much as the electric motor. I should arrange in the following order the benefits we receive from electricity: First, power; second, light; third, heat, (cautery, cavity and root canal drying); fourth, electro therapeutics.

Power.—By using power for running the burring engine we are enabled to distribute the weight of the body on both feet and maintain a steadiness of the hand not possible when the engine is propelled by foot power. Since the introduction of power for running the engine we do not hear so much of the "dentist's leg" as formerly. If it is true that there is a subsidence of this malady, then for this reason only the power is worth all the expense and inconvenience of putting in a plant. The application of power extends beyond the operating of the burring engine. The various mechanical mallets are operated by the same motor, and the current may also be used for power in the operation of the electric mallet and other office appliances.

Light.—I hardly see how I could dispense with my electric light, especially on such dark days as have recently prevailed. Perhaps we have underestimated the size of a cavity, or for some reason our work has been delayed, the operation must be completed at this sitting, daylight slips away before the filling is quite complete. In such cases how welcome is the electric lamp. For ordinary work two kinds of lamps are desirable; a small one, half candle power, for use inside the mouth, and a sixteen or thirty-two candle power lamp for use outside the mouth. The small lamp may be held in the mouth, the light being reflected on the part being operated upon. The larger lamp should be hooded in order that the light may be directed in such a manner as to shield the eyes of both patient and operator. It may be suspended by a fusee, supported by an arm connected with the chair, or held by an assistant. I prefer the latter as in movements of the head of the patient the light may frequently need new adjustment which give less inconvenience to the operator if held by an intelligent assistant.

For the examination of obscure cavities and root canals and the completion of fillings, I oftentimes use a small pea lamp, half candle power. It can be retained in the mouth sufficiently long without annoyance to the patient from heat by breaking the current as one makes changes in instruments, or is waiting for gold. Any one who has used the electric light for discovering obscure cavities will fully appreciate the small lamp for this purpose. We often find cavities where we had not suspected them, our small explorers being unable to reach them. Floss silk may be drawn between the teeth and no evidence of decay be detected, while by the use of the small light we are enabled to discover cavities. By the small lamp we can determine whether a pulp is alive or dead, and we can sometimes diagnose a hyperæmic pulp if the pulp has not been too much reduced in size. By a five candle power lamp we may sometimes determine the presence and nature of pathological conditions in the antrum.

Heat.—I believe thorough dryness to be one of the best obtundents for sensitive dentine, and this is easily secured through the use of small cauteries. Although electricity has not been very generally used by the profession for desiccating root canals, still I am of the opinion that it is valuable for that purpose.

The cautery is very useful in removing small pathological growths and for the arresting of annoying little hæmorrhages about the gum during the operations in filling. I find the cautery very useful also for the removal of the gums overlying the wisdom teeth.

Electro Therapeutics.—I have had but little experience in the use of electricity as a therapeutic agent. That it is employed with benefit for the relief of certain pathological conditions, is well known, but for the relief of pathological conditions of the tooth's pulp or the peridental membrane we have no positive evidence.

Source of Supply.—An important point to be considered is the source of supply. Shall we get it from the dynamo? Yes. But shall we get it from the dynamo direct always? I should not say so. It is not necessary, neither is it necessary that we should always get it from the dynamo. There are a number of ways of securing a plentiful supply. For the purposes of power and large lights, it is most convenient to use it direct from the dynamo. For cautery and the smaller lights, we will find it more convenient to take the supply from a storage battery. There may be no danger in 110 volts as it comes from the dynamo, but for appliances used in the mouth I prefer four or six volts in preference, especially if I get as good or better results, besides this does away with expensive transformers and rheostats. If you have two storage cells you have four volts, two volts each. If you wish to use a small lamp in the mouth you get a four volt lamp which is adapted to these cells. If you use a larger lamp you must add cells. Four volts will run the motor perfectly well and answer every purpose for ordinary use with a burring engine. The storage cells may be charged from the dynamo. That is inconvenient if you are situated in a building which is not installed. If you have the incandescent current in the office all that is necessary as a resistance is a fifty candle power lamp between the dynamo and your cells. I am using cells that I have had for three years; they have been slightly out of order a few times, but still give good satisfaction. If you have no dynamo current in the office and do not wish to send the storage cells out to be charged, the next best thing to do is to use primary cells and charge them from these. I used this method for some time and found it very satisfactory. Either gravity cells such as are used by telegraph operators or quick acting cells may be employed.

DRUGS NECESSARY OR DESIRABLE TO EQUIP A DENTAL OFFICE.

Dr. A. W. Harlan: In order to make this note brief and concise, I will say at the outset that I suppose a dentist could practice if he had only four or five remedies besides water and heat. It is not always wise, however, to use the least number of drugs or remedies because such a procedure may cause a greater loss of valuable time to the patient and dentist than many times their first cost, even if they should be the most expensive to be procured. Economy in the use of drugs, therefore, is not to be recommended.

It is absolutely necessary to have in a medicine case arsenic, ammonia, aconite root, chloroform, tincture iodine, dialyzed iron, glycerine, tannic acid, oils of cloves, cassia, sassafras, cinnamon, gaultheria, calcium sulphide in pills one-tenth grain, tincture of capsicum, alcohol, carbolic acid, tincture of cantharides, zinc chloride, sulphate, iodide, permanganate, boracic acid, peroxide of hydrogen, corrosive sublimate, cinnamon water, peppermint water, menthol, tincture of cannabis indica, wine of opium, hydrochlorate of cocaine for solutions, sulphate of quinine, one, two, and four grain pills, solution of chloride of lime, borax water, europhen or iodol, chloride of sodium, nitrate of silver, trichloracetic acid, dilute sulphuric and hydrochloric acids, fluid extract of jamaica dogwood, and fluid extract of tonga, potassium bromide, iodide, permanganate and chlorate, nitrite of amyl, resorcin, oil of camphor and spirits of camphor, alum, alumini chloride, Labarraque's solution of chlorinated soda, resublimed iodine, hydrate of chloral, Monsel's solution of persulphate of iron, eucalyptol and acetate of lead, and cajuput oil.

These standard drugs may be supplemented with aristol, boroglycerine, liquid vaseline for solution of cocaine, lanolin, pyoktanin (yellow), beta naphthol, sozoiodol, sulphate of atropia, chromic acid, eugenol, myrtol, terebin, sulphate of gelsemium, $\frac{1}{60}$ grain pills, papain (digester), silico fluoride of sodium, thymol, terpinol, carbonate of magnesium, precipitated chalk, sodium ethylate, fluid extract of hammamelis, apomorphine hydrochlorate in $\frac{1}{16}$ grain tablets, and morphia acetate in $\frac{1}{8}$ grain tablets, oleoresin kava kava, sulphonal, and phenacetine, alumnol, phenol-camphor, pyrozone from 3 to 25 per cent, thioresorcin, boric acid (new), salol (pills), five grains, acacia, subnitrate of bismuth, bromal hydrate (three grains), sleep producer, iodoform et eucalyptus oil, chloralamid, hypnotic.

It is believed that the above list of drugs would fully equip a modern dental medicine case without further addition, unless nitroglycerine were added for sudden cases of angina pectoris. It will be noted that nothing is said of ether, creosote or nitrous oxide, methyl or ethyl chloride, nor has it been thought best to say anything of pental. It is doubtless true that many of those present have not used the full list of drugs mentioned, still in looking it over when it is in print, and reading one or two of the later works on therapeutics, members of the society will feel that some of the opportunities of their lives have been lost in not being able at a moment's warning to utilize, for emergencies, one or more of the substances mentioned. I could have made the list much larger, but I have purposely spared you to-night, feeling that when you become engrossed in the study of drugs as remedial agents, that all efforts in this direction will be well repaid, in the consciousness of added power to avert disaster promptly, assuage pain, and assist nature in her return to normal activity by utilizing the unselfish labors of experimental therapeutists and bacteriologists.

Dr. E. M. S. Fernandez showed a diagram of the operating room work-desk for crowns and bridges, and described it in detail.

Dr. C. P. Pruyn: In regard to the subject of ventilation spoken of by Dr. Brophy, the system I have been using for the past three years has been very satisfactory to the members of our office. We have an eighth horse power electric motor. It is placed in the laboratory before a small open window, and has a twelve inch fan. The same motor runs my suspension engine. The arm is suspended over the chair, so that the motor does its full duty. It runs the burring engine and at the same time works as a ventilator, pumping air out of the office. A man can smoke a cigar in the laboratory and not have it known to others in the other rooms. The force of the fan running has sufficient suction power to throw the fumes of cigar smoke out. It costs me $3 a month to run it, while the motor itself costs $30.00, and I find it the best expenditure of money I have ever made. In addition to that, last summer during the warm days, I spent a little more money. I got another motor, put it in my operating room with a fan in front and at the side of my patient. I had it running during the warm weather, pumping air very near the patient. It paid for itself within a few days. I liked it so well, that I have kept it running all the time by reversing it. It keeps up motions of air without draft on the patient. It has been of great benefit to us. In our office there are three men and four girls, when each of us has a patient, that makes three more. Then there are one or two waiting, so that we have ten or a dozen persons in our offices all the time, and we find these fans of great benefit to us.

Dr. W. H. Taggart: I wish to speak of one point that was referred to by Dr. Gilmer with reference to the danger of the 110 volt current. While they were putting the wires in my office last summer the electrician short circuited and caught the current, which gave him a scare. I asked him if there was any danger about it, and he said there was not, but that ever since dynamos came into use he made it a point to jump, not because it is necessary, but it scared him. He then took the 110 volts. So the only thing that is connected with it is the scare that comes with the shock. There is absolutely no danger from it. If any of you will make that test sometime you will see how true it is.

I will speak of another feature in connection with motors in the dental office. The plan I have followed in getting rid of the noise is by suspending the motor. You will find this a very decided advantage, no matter what kind of a partition you put the motor against. If you screw it to the floor there is always a sounding-board that makes a noise, but by suspending the motor either with a wire or cord sufficiently strong you will get rid of the vibration. The vibration is spent in the cords and is not converted in the sound of the motor. It would make considerable noise if put on the floor, whereas if it were screwed against the wall it would be absolutely noiseless as far as vibration is concerned if suspended in this way. The weight of the motor is sufficient to keep the pulley tight, so there is no necessity for its being screwed to the floor in order to get tension. The motor I have is suspended from a bench with a cross a foot long. That gets rid of the vibration from that leg. The one for vibration is suspended from the ceiling, and that gets rid of the noise from that source. It is of decided advantage, because even if the motor is in the laboratory there is always a hum connected with it. The patient does not know what it is, but the hum wears on him. It is going all the time.

Dr. C. F. Hartt corroborated the statement made by Dr. Taggart that the current of 110 volts was harmless.

Dr. J. N. Crouse: I am somewhat puzzled as to whether Dr. Brophy is correct or not in the matter of rays of light coming from different directions. In my operating room I have three windows in front of my chair, one of them being a bay-window. In these windows I have venetian blinds, so that I can shut either of the windows I please. Unless the sun is shining in from the southeast very powerfully all the blinds are up. I am wearing glasses with less magnifying power now than I did seven years ago. At the time I moved into my office I had one square window, with no opportunity whatever of increasing the light during cloudy days, consequently I injured my eyesight so much that I thought best to rearrange it. It suits me best to have light coming from the three windows. I have another operating chair looking to the South with a building up close to the West, where we have nothing but direct and side rays, and that is not so good.

In the matter of rays of light crossing one another, I will say that it is just as a man becomes accustomed to doing his work. Dr. Brophy goes into his office and shuts off a good deal of the light that other dentists would use, and he thinks it is the best thing to do. I adopt my plan, and I think it is the best there is. If there is such a thing as rays of light crossing and neutralizing each other, I know nothing about spectrum analysis, and I do not claim to know very much about it.

As to persons wanting to talk to me and to take up my time when I am busy, they have tried that more than once, but I tell them that I am engaged with a patient, and that patient is justly entitled to my time, and I instruct my assistant to make an appointment with such persons, if necessary, or if it is a patient I want to make an appointment with myself, I see them in the other chair, so that I have not been away from my patient more than a minute or so. I would just as soon pass through my sitting room as through the little side door that has been mentioned. A side door is of no advantage in my office.

As to the electric motor, I got my idea of suspending my motors from Dr. Taggart. I have mine clear out of the room. They are in a room below and the cords run up to my chair. Either of my motors may be run with the drill or the mallet, and they run so quietly and noiselessly that I hardly know whether they are running or not. To me it is a great relief to get rid of the noise when you are tired, when you want to think or study out some difficult operation you are going to do. It is very confusing to me, more so than when I was twenty years younger. It is a great advantage to have the motor to run my engine and lathes in my laboratory. I am trying to get a motor to give me compressed air for both my solder, inlay and porcelain work. Thus far I have not been able to get a pump that forces enough condensed air into the cylinder for melting purposes.

Dr. E. M. S. Fernandez: I agree with Dr. Brophy that a side door is a convenient thing for the dentist if he wants to slip out at any time for lunch unknown to his patients; or perhaps he may want to rest a little, as I do sometimes. It does me a great deal of good to lie down for fifteen minutes. It enables me to work the rest of the time much more easily. I could not do it if I entered the reception room. If I have a patient in the chair I let the girl take another one into the ladies' room, have her remove her hat, cloak, etc. I leave my chair, and if desired, make an appointment with her to treat her teeth, and I keep the door in such a way that my patients cannot come in. I have a small room for odds and ends and through it I can get out.

In regard to light I am unable to say which is the best. I have two windows, one near the operating chair and the other at my back. I find the back window useful. If I got in front of the patient to do work, I would screen the front light entirely, so I find a side light and top light very useful.

In order to get rid of the noise made by the motor, I will say that I am waiting for the exposition to give out what it has in stock. I think it will give us some valuable information in this direction. Dr. Taggart has gotten rid of a great deal of the noise, but not so much by suspending the engine as by having a good-sized motor. With his motor he can easily get full speed and power. The trouble with the majority of motors is that the strain causes the sound or vibration. Another point is this, that we must have, and there are now, ball-bearing motors on the market already. A ball not larger than my two hands will rotate at full speed. I think we shall see various motors at the exposition, and I hope to be able to get a good one from there to do away with the noise that we now have. All our electrical operations should be managed by buttons on the floor. The rheostat should be in the floor, the same as Dr. Taggart has his. The floor is the most convenient place to have the rheostat.

In regard to the drugs spoken of by Dr. Harlan, it is necessary for our work that we should have them in our medicine case. I perhaps do not use much more than a dozen of those which he has mentioned.

In regard to the desk I have spoken about and described I shall be glad to receive any suggestions from the members. It may not answer the purpose of every dentist because we all have different ideas.

Dr. Charles E. Blake, of San Francisco, at the close of the discussion, exhibited some new extracting forceps.

THE DENTAL REVIEW.

Devoted to the Advancement of Dental Science.

PUBLISHED MONTHLY.

EDITOR: A. W. HARLAN, M. D., D. D. S.

ASSOCIATE EDITORS:

C. N. JOHNSON, L. D. S., D. D. S. T. L. GILMER, M. D., D. D. S.

METHOD OF HERBST AGAIN.

In the *Dental Cosmos* for May, page 363, Dr. W. E. Christensen publishes a somewhat labored article to show that the Herbst method is intended to save teeth ! not the remnants of pulps of teeth. He gives the credit for amputating a pulp mass from a tooth after it has been in contact with arsenious acid twenty-four hours to A. Witzel, of Essen, Germany. This rather doubtful compliment must be rudely destroyed, as I have seen the same thing done as early as 1866 in the city of Indianapolis. It was no unusual thing for dentists after the first introduction of arsenic for destroying pulps to only remove the bulbous portion of the pulp and soak the remainder with antiseptics and tinctures, place a metal cap over the whole and insert the filling on top of this. What was the result—abscess after a few years. There are many men now in practice who are doing the same thing right here in Chicago. What is the result—abscess. It is in consequence of this slovenly work intended to be lasting, that there is a call for educated operators, bacteriologists and therapeutists all over the United States and in other countries. Dr. Christensen mistakes the purpose of criticism when he argues that because some one has partially filled a root, therefore root-filling is inferior to a sulphuretted hydrogen pest-house. The presentation of his two cases in this respect count for nothing, nor does his four years in Dr. Weil's office count for anything when he sees twenty patients a day and indulges in such an absurdly ridiculous practice as to destroy a pulp, remove half of it and try to mummify the remainder. The materials used could not produce a mummy. Mummies are not manufactured in the presence of moisture and no Herbst advocate will care to assert that the root of a tooth will remain dry even though the tin or gold is burnished over the ends of the root canals in a molar or any multiple rooted tooth. The object in saving pulpless teeth, or trying to save them, is to protect the apex of each root by stopping it with a filling, or by growing an encystment over the end. As the latter is rather hard to foretell, the former *must* be practiced if the operator can honestly tell his client that all has been done that is possible. It seems like wasting the time of readers of dental journals to argue this question from a practical standpoint, as the above writer seems to think it should be argued from that alone, but there are those who only read to hurry them on to mistaken ideas of what is sound, and a protest must go out against such an uncertain procedure as the Herbst or Witzel method of treating pulps of teeth. The idea that cocaine would produce a permanent paralyzing effect on a stunned pulp, a mutilated pulp is so "practical" that any anæsthetist or physiologist who would read it would wonder "where he was at." If the rotation method is not understood or practiced by Americans, is that any reason why they should not adopt the mummification of "living pulps if there were any scientific foundation for its practice." There is no "Chinese wall" in the United States of America, we are eager for the truth and when any real discovery is made we all acknowledge it, but from the practice of leaving a portion of a dead pulp, or died pulp, or dying pulp, or mummified pulp in the root of a tooth we shrink as from winter's chilly blasts when we have left our overcoats at home. There is no certainty that the pulp will not "Kobold" some fine evening when we are going to a musicale or some other entertainment and we would be more distressed than in the absence of the overcoat, for then we could not run, or jump, or do some violent exercise to get warm again, but nothing will relieve a threatened abscess when there is a corpse in the root of a tooth. A few well chosen communications on this subject will be thankfully received by the

EDITOR.

UNFORTUNATE TO BE RASH.

At the late meeting of the British Dental Association a motion was made to send delegates to the Dental Congress, but from a misunderstanding the resolution was voted down. Some ultra medical dentists are forever opening their mouths at a time when silence would be more than golden. We regret the hasty action more than mere words can express, because the Congress is an assured fact, sure to be a scientific success, and it will be largely attended by foreigners. If the opponents of the Dental Congress would only reflect that they are making unfortunate steps in history, which a little larger liberality of views would tend to make brilliant steps in human progress, we think they would halt. The little rivulet of 1885 has grown to be an enormous stream in 1893, and by 1900 it will be a river of grand proportions. Dentistry is too large to be bounded by a high wall with seventeen or eighteen other striplings enclosed. It is "unfortunate to be rash."

The managers of the Dental Congress have never asked any dental society to send delegates, officially, they have invited the world of dentists; reputable dentists, to meet in Chicago under restrictions from honorary officers in all countries and having done this it ill becomes any society to vote down a resolution to send official delegates. The management have been pleased to receive the credentials of delegates from societies and governments even, this, however, is purely voluntary on the part of governments and societies to honor members of the profession in this manner. It is not the custom of International Congresses to be composed of delegates exclusively. When it is stated that only thirty-six persons voted on the resolution presented at Birmingham the intelligent reader will understand that it is a farce to consider this the voice of all Britain.

We hope that the calm good sense of the conservative dentists of England will see that such an assumption of authority is rendered null and void by their breaking away from such petty thralldom as this. Our doors are wide open to all dentists of the world, who are entitled by education and ethical conduct to associate with their fellows.

EXPLANATIONS.

Two letters have been published in *The Journal of the British Dental Association* for May, signed by Mr. W. H. Coffin and Mr. J. Howard Mummery.

Both letters are explanatory of the attitude of the two gentlemen *re* the Dental Congress. They are reproduced here as follows:

THE ANNUAL MEETING AND THE CHICAGO DENTAL CONGRESS.

To the Editor of the "Journal of the British Dental Association:"

SIR: At the Birmingham meeting an idea was prevalent that I had been honored to convey an invitation to the Association to nominate delegates to Chicago.

Last year at Manchester, with the authority of the American members of the Advisory Council of the Congress Auxiliary, I was empowered, in case the Association had no invitation from a Branch, to propose that the annual meeting this year be held at Chicago. There being no other invitation, I made that proposal to the Representative Board, on the precedent of the British Association meeting in Canada. On the subsequently tendered hospitality of the Midland Branch I withdrew my motion, but at the request of the Board brought it formally before the General Meeting. With this the incident was at an end.

At Birmingham the meeting almost unanimously declined to send delegates to the Columbian Dental Congress, but attention must be drawn to the fact that no invitation to do so was ever submitted to or considered by the Association or any Committee of its executive.

Yours truly,

WALTER H. COFFIN.

94 Cornwall Gardens, S. W., April 10th, 1893.

To the Editor of the "Journal of the British Dental Association:"

SIR: A letter was sent from the executive of the Columbian Dental Congress to the meeting of the British Dental Association in Birmingham. This letter gave certain explanations which would probably have considerably modified the decision arrived at by the meeting.

The letter was not forthcoming until too late to be considered by the President, which, to many members of the Association, appears to be a matter for regret, on which some further light would be desirable.

My reason for taking up this question is that I have had many letters from personal friends and others in America in connection with it, and so feel some responsibility in preventing any misunderstanding that might arise.

Yours faithfully,
J. HOWARD MUMMERY.
10 Cavendish Place, W., April 10th, 1893.

These letters show that both gentlemen labored under the misapprehension that dental societies had been asked to send delegates to the congress. The invitation was general to all societies and all representative dentists in the civilized world. This was following the already established custom of all medical and scientific congresses, and we think that those who are familiar with international customs will agree with us that this is correct. As already expressed elsewhere, we hope that the action of the B. D. A. will not deter any one eligible to membership in the congress from coming to Chicago and taking part in the greatest convention of dentists that has ever been held in the world.

THE DENTAL CONGRESS.

The actual work of the Congress will be divided into eight sections as follows:

OFFICERS OF THE SECTIONS.

SCIENCE.

Department "A."

SEC. 1. Anatomy and Histology. Chairman, R. R. Andrews, Cambridge, Mass.; Vice Chairman, E. P. Beadles, Danville, Va.; Secretary, F. T. Breene, Iowa City, Iowa.

SEC. 2. Etiology, Pathology and Bacteriology. Chairman, G. V. Black, Jacksonville, Ill.; Vice Chairman, Geo. S. Allan, New York, N. Y.; Secretary, E. S. Chisholm, Tuscaloosa, Ala.

SEC. 3. Chemistry and Metallurgy. Chairman, D. R. Stubblefield, Nashville, Tenn.; Vice Chairman, J. S. Cassidy, Covington, Ky.; Secretary, E. V. McLeod, New Bedford, Mass.

SEC. 4. Therapeutics and Materia Medica. Chairman, F. J. S. Gorgas, Baltimore, Md.; Vice Chairman, N. S. Hoff, Ann Arbor, Mich.; Secretary, Geo. E. Hunt, Indianapolis, Ind.

APPLIED SCIENCE.

Department "B."

SEC. 5. Dental and Oral Surgery. Chairman, T. W. Brophy, Chicago, Ill.; Vice Chairman, M. H. Cryer, Philadelphia, Pa.; Secretary, J. F. Griffiths, Salisbury, N. C.

SEC. 6. Operative Dentistry. Chairman, Wm. Jarvie, Brooklyn, N. Y.; Vice Chairman, Dan'l. N. McQuillen, Philadelphia, Pa.; Secretary, Henry W. Meryon, Nashville, Tenn.

SEC. 7. Prosthesis, Orthodontia. Chairman, C. L. Goddard, San Francisco, Cal.; Vice Chairman, T. S. Hacker, Indianapolis, Ind.; Secretary, E. H. Angle, Minneapolis, Minn.

SEC. 8. Education, Legislation, Literature. Chairman, J. J. R. Patrick, Belleville, Ill.; Vice Chairman, H. L. McKellops, San Francisco, Cal.; Secretary, W. H. Whitslar, Cleveland, Ohio.

The Chairman of Sections will deliver an address on opening the meetings and the Secretaries will preserve accurate records of the sessions.

DOMESTIC CORRESPONDENCE.

LETTER FROM NEW YORK.

To the Editor of the Dental Review:

Dear Sir—The regular meeting of the Central Dental Association of Northern New Jersey, was held at Newark, on Monday evening, May 15th, the President, Dr. R. M. Sanger, presiding. After the usual banquet, and the transaction of routine business, a paper was read by Dr. D. M. Sabater, of New York. Subject, "Diseases of the Gums, Their Cause and Treatment." Dr. Sabater divided these pathological lesions into two groups; those having a direct and local origin, such as gingivitis and ulitis, epulis or tumor; and those having an indirect origin, as cloaca, in alveolar abscess, and pus discharges from earthy degeneration and fatty degeneration, pyorrhœa alveolaris, etc.

Gingivitis and ulitis, being due to mechanical or chemical irritation, from calcareous deposits and other foreign matter about the teeth, the first thing to be done was to remove those causes of irritation and inflammation, and then apply astringent washes.

Epulis, the doctor said, was caused by some local irritation or violence, often a blow, and its treatment is the removal of the tumor by ligature or curved scissors, and the application of chromic acid, chloride of zinc, or the galvanic cautery, for the purpose of destroying its roots and preventing another growth. Where there is persistent hæmorrhage, the actual cautery should be applied, and followed by bichloride of mercury, peroxide of hydrogen or other antiseptics. Canker sores, generally the result of neglected hygiene, are removed by giving attention to cleanliness, and the application of nitrate of silver, sulphate of zinc, permanganate of potash, glycero-tannin, etc.

After describing various other lesions found in the mouth, and and giving their treatment, the doctor gave the history and treatment of a number of interesting cases in his practice.

Dr. B. A. R. Ottolengui, of New York, spoke of a lesion not mentioned in the paper, hypertrophy of the pulp itself, and stated that while in his earlier practice it was very frequently met with, it was now of rare occurrence; and this curious fact he thought might be accounted for, at least in part, by the fact that his early practice was among a lower class of people who gave little attention to their teeth, and his later practice was among a better class who were more particular about matters of hygiene.

Speaking of gingivitis, Dr. Ottolengui cited the case of a boy patient who got along very well while under treatment, but whenever he would be absent for a year he would come back with the same trouble, which was principally confined to one side of the mouth. This peculiarity was due, as the boy admitted, to his chewing mostly on the other side of his mouth. The doctor directed the boy to get some chewing gum and chew it for ten minutes after each meal, particularly on the side of the mouth where the gingivitis was developed; and the result was "a resurrection" in the boy's teeth. The doctor stated that, while the chewing of gum as a constant habit is deleterious, the abbreviated habit, chewing it five or ten minutes just after eating, is beneficial, probably because it excites a flow of saliva at the time it is needed by the digestive apparatus.

Dr. Ottolengui described a case of pyorrhœa alveolaris in which a lateral was extracted and replaced, or replanted; the case being still under treatment and the result not determined.

Dr. R. M. Sanger spoke highly of trichlorocetic acid as a remedy in connection with the removal, without hæmorrhage, of salivary calculus where the use of the scaler is difficult or inadequate.

Dr. Ottolengui, in reply to a question about the manner of using trichlorocetic acid, said he applied it with a bit of orange wood, dipping the wood into the acid and passing it up under the gum. Dr. Ottolengui also strongly advocated the more general use by dentists of a spraying apparatus for cleansing the mouth, washing away the debris of dental work, and removing lodgments of food from the teeth and gums, saying that he had very materially increased the trade of the dealers in his neighborhood by recommending the use of a spraying apparatus to his patients, and he found that they used it with very good effect. The doctor used a simple double-bulb atomizer.

The paper was further discussed by Doctors Iredell, Sabater and Sanger.

The Edison Electric Company exhibited at the meeting a new dental motor, with battery. NEW YORK.

REVIEWS AND ABSTRACTS.

TRANSACTIONS OF THE AMERICAN DENTAL ASSOCIATION, 1892.

It is inevitable that the transactions of a society will vary in interest from year to year. Societies are no more than individuals always at their best.

The conditions of success are not in all years equally favorable. Some executive officers have more executiveness than others. The degree of harmony also varies, usually with the amount of society politics that may intrude before and during meetings. Again, we count a meeting successful or lacking, not always by what the society does so much as by what we think we have reason to hope or expect. For example, when we read the report of proceedings of the Swanee River Valley, or Posey County Dental Societies we are often both pleased and surprised because we have not been expecting much.

But when on the other hand we have in hand the report of a society which by its name and fame assumes to represent the whole of a given profession in one of the foremost nations of the world, we naturally expect a great deal, perhaps too much, and are the more likely to be disappointed. We often learn and speedily forget that in all organizations, local or national, human nature is the predominating element so that under certain circumstances the proceedings of a usual congress may be quite on a par with those of an unusual Kansas legislature.

The proceedings of the American Dental Association for 1892 impress this reviewer as being well up to the average, that is to say, fairly interesting, possessing considerable value, and yet as a whole somewhat disappointing, because we are hoping for something quite superior to the work of, for example, a healthy State society.

We are presented with a book faultlessly made under the skillful editorship of the faithful Secretary, now incumbent nearly fifteen years and the usual skillful execution of the printers.

Glancing through the first pages, we note that the society is divided for work into seven sections, all except one with two or more branches, covering the widest range of subjects related to dentistry. The array is imposing, we are somewhat awed by its magnitude. We are forcibly impressed with the grand proportions of the A. D. A. We are approaching a mountain, and it is in labor; our anticipations are eager to behold what it shall bring forth. All this is excellent preparation for a disappointment sure to follow.

The reader who examines a copy of A. D. A. transactions for the first time is possibly somewhat like the little four years old girl, who having heard much of General Grant, was introduced to him. "Have you been in lots o' battles?" she inquired, eagerly. "Yes, my little girl, a good many." She looked at him a little doubtfully, yet determined to test the matter, said: "Let's hear you holler!" She was no doubt disappointed.

Now, some of the facts about the A. D. A. are these, it is the one organization representing the national spirit of the dental profession, and as such is entitled to great respect. The mass of its membership entertain this respect, but individually they feel so far remote from the leaders, they shrink from doing active work. They view that activity as belonging to the few, and consider their duty accomplished when they have paid their yearly dues.

The few on whom the labor falls are busy men, often overworked in their several places. Each one is active in his own local, city, district or State societies. His share of the load of the

A. D. A. is laid upon him as a kind of "last straw" added to the burdens of the year.

The meetings come in the vacation summer season, just when he feels most like taking things easy. He "sort o' takes in the meeting" on his way to the fishing grounds. The season and all things else dispose to ease, Saratoga waters with him add a soporific tendency to their other qualities, and e'en the "roar of old Niagara" is soothing to his intellect.

During the year previous these men have given their best efforts to local societies, to colleges, legislation, perhaps, and to the demands of exacting private business. It cannot be expected they will push the affairs of the A. D. A. or anything else, very enthusiastically in the month of August.

When the National organization was in its infancy, a majority of the members belonged each to one, possibly to two other, and local societies. Now, he probably is a member of twice as many, for all of which he is expected to do something, besides answering calls for papers and clinics from various others, far and near. The members of the newer societies fail to realize as they should, how important it is for them to assume the principal burden of a new work, and give "the old wheelhorses" an occasional rest.

It may be questioned also, whether the A. D. A. has not tried to seed too many acres with a bushel of wheat—in a word scattered its efforts over too much ground.

It would seem that one hundred and more local societies should be sufficient for the production of the perennial crops of papers and discussions on such subjects as matrices, cohesive and noncohesive golds, amalgams and cements, reports of cases, etc. etc. Instead of following in the wake of all these, it would appear that the A. D. A. would do better as a representative body, if it were to sit as a sort of closer on the general work of each year in the various States, and in the further consideration of matters of common importance, such as a more uniform legislation, education and the colleges, public health in relation to dentistry, and international questions. The representative national society of the United States ought to strike hands with dentistry the world over.

Some of these things were more than hinted at by President Walker in his address, and action was taken in the right direction. We will notice the reports in the order in which they were given :

SECTION VII.

"Anatomy, Pathology and Surgery," reporting first, by its Chairman, Dr. T. W. Brophy.

This report enumerated many of the various articles published during the year past bearing on these various subjects, but without comment as to their comparative value or special merits. The section then reported the following papers to be read by their authors:

1. "Pyorrhœa Alveolaris," Dr. J. E. Cravens. This paper was the "report of a case in practice," a single case of rather doubtful diagnosis, treated with *argenti nitris*. Well enough, perhaps, for a monthly meeting of a local society, but scarcely worthy of the A. D. A., where we would look for the treatment of a pathological subject to proceed from the standpoint of principle rather than incident. There was one suggestion of value in the paper, viz.: The free use of hot water in syringing alveolar "pockets."

2. A paper by Dr. M. H. Cryer, entitled, "A New Operation for the Exsection of the Inferior Dental Nerve." The operation as described could hardly be styled new, being really an attempt to perform an old operation in a new, unusual and as we should think, inadvisable location, viz., near the sigmoid notch, which is deepened to reach the foramen. This seemed to be the consensus of opinion among those who discussed the matter. We may be thankful that under the reign of more skillful dentistry and oral surgery, the cases have become far less frequent wherein resection would seem to be necessary.

3. "The Grinding Teeth of the Herbivorous Mammalia," by Dr. Alton H. Thompson. This is a paper of purely scientific character, in scope and treatment of its subject worthy of presentation to the A. D. A. We would not assume to criticise it save perhaps for the nonavoidance so far as possible of terms unfamiliar to most readers. But we must say that such a paper should be fully illustrated to make it intelligible to the great majority of hearers or readers.

The man who has made special studies along certain lines, sees in his own mind so clearly the thing he describes, he is quite apt to assume that others cannot fail to see it; but usually they do not. A single picture is often worth more than a page of words. A few words *and* a picture convey infinitely more definite knowledge than many words and no illustrations, especially where the words are for the description of the physical peculiarities of *things*. Rob Gray's anatomy of its plates what would his descriptions amount to inimitable as they are?

In these days, when the making of pictures has been made so easy and cheap it seems a pity to go without them where they would be so greatly helpful. The lack of illustration possibly accounts for the absence of discussion. The paper, read in a rapid manner, without an accompanying object lesson, was not understood.

4. "Molar Teeth of the Proboscidea," by Dr. W. C. Barrett. Here is a paper, representing probably not so much original labor as the one preceding it, following in the same line of investigation, but narrower in its scope; yet made very interesting and attractive, shining by comparison, securing discussion because specimens were present at the reading, and cuts are numerous and excellent in the report. In this way Dr. Barrett receives all the credit he deserves. Dr. Thompson does himself an injustice.

SECTION I.

PROSTHETIC DENTISTRY, CHEMISTRY AND METALLURGY.

DR. W. B. AMES, CHAIRMAN.

"The First Paragraph reads as follows: Section 1 has very little matter offered this year. We have no papers to report. Dr. Geo. Evans will describe a process of enameling the surfaces of gold crowns." For Dr. Evans' verbal description of this method we refer the reader to the report and cuts on page 109 of the *Transactions*. The discussion was principally on priority, as to who had first given out the idea of enameling metal with porcelain or glass.

In this connection, Dr. Truman arose to a question of privilege, to call the attention of the association to the fact that Dr. Dwinelle having been reduced to a condition of want in his old age, a committee, consisting of Drs. Perry, Allport and Truman had been appointed to receive subscriptions to a fund for his aid.

SECTION II.

DENTAL EDUCATION, LITERATURE AND MOMENCLATURE.

DR. LOUIS OTTOFY, CHAIRMAN.

"Summary of Report, Education, Enumeration of Colleges and Graduates."

Total number of Colleges, 1892	38
Total Number of Graduates, 1892	1483
Compared with	
Total Number of Graduates, 1886	503
Showing Increase in Six Years of	980

Ten of the colleges enumerated graduated less than ten students each; five graduated from one to five each.

Several of the colleges mentioned were quite unworthy of enumeration, and suggest once more the thought that the A. D. A. could not do a more acceptable work than devise some means for preventing the free and wholesale chartering of so-called educational institutions in the several States. As it is now, there is nothing to prevent any three or more men, from chartering in the State of Illinois, for example an institution for the exhibition of brass monkeys and calling it a college.

LITERATURE.

Under this head the report gives a list of the books of the year with brief comments on their scope and value.

The report of the section on these two lines is comprehensive, concise, and clear, a model of its kind, full of suggestiveness and well worth examination.

Under the head of nomenclature the report is also a model one in its way, having nothing to say the section says nothing.

SECTION III.

OPERATIVE DENTISTRY.

"Report Read by A. W. McCandless, Secretary." This report has the unusual fault of too great attempted brevity. There is an enumeration first of sixty articles on operative dentistry appearing in the year past by *title*, second, the names of the journals wherein these have appeared.

This enumeration is just about as valuable as so many words or figures selected at random and hung on a string. There is no word to indicate which of the articles have special value or novelty, and no memoranda to assist in finding any one of them. Better specific reference to three or four of special value, giving journal, number and page, than the whole lump.

The report goes over into the field of nomenclature (ignored by Section II.) long enough to notice the term "Morsal" as applied to the "grinding" surfaces of the teeth, and this is the sole service to the great need of better nomenclature given by the A. D. A. for 1892.

We predict something far better from the committee having this matter in charge for the World's Columbian Dental Congress. The report further mentions a few appliances, says Dunn has an original method of separating teeth with floss silk and cotton, leaves us to guess what that method may be or where we may find it described; and finally reports two cases, "Transplantation," by Dr. Morrison, of St. Louis, "Matrices," by Dr. Cravens, of Indianapolis, which were read by their authors.

The paper by Dr. Morrison contained no discussion of the principles involved in the question, but was a report of several cases, more or less successful, with inferential advocacy of a more general use of transplantation in our practice.

Dr. Cravens' paper was brief with no new ideas that we are able to discover, nor would we expect to discover any in either paper or discussion on a subject which has been flailed over for years, till the straw and chaff are all one, and the wheat sifted out long ago.

Some things worth reading were brought out in the discussion on implantation, and then of course the arguments drifted, and became heated, on the *relative merits of cohesive and noncohesive gold.*

"Hear, Hear," Selah.

SECTION IV.

MATERIA MEDICA AND THERAPEUTICS.

Report by Dr. Geo. E. Hunt, Secretary. This enumerates, first, the really important new remedies, the bacteriological experiments performed relating to both new and old during the year, with instructive comments thereupon, just as a report of this character should do.

Dr. Harlan, of the section, made a supplemental report on new remedies, principally europhen and trichloracetic acid.

SECTION V.

HISTOLOGY AND MICROSCOPY.

Dr. Frank Abbott, chairman, made only a verbal report, of the things he had been unable to accomplish, and presented one paper, a volunteer, by Dr. C. W. Stainton, of Buffalo, which was read by the author—subject "*Crownless Teeth.*" It consisted of a report of several cases occurring in one family, the deficiency being in the author's opinion hereditary. The paper is valuable, with its accompanying cuts, as adding facts to the list connected with this rather obscure question, on which some shrewd guessing was done in the discussion.

SECTION VI.

H. A. Smith, chairman, presented a valuable report, the principal part of which was by Dr. Patrick, on the examination of prehistoric crania.

This represents a great amount of labor, although only a "report of progress"—performed by Drs. Patrick, Andrews, Knight and Newton, in tabulating the results of the examination of 8,481 teeth of ancient peoples. It is an abstract of the first eight volumes of their records in this line of investigation—a work which when completed will be the most comprehensive of its kind and one which will stand as an enduring monument to the committee and to the A. D. A.

It will settle and settle forever some of the mooted questions of the past and present. For example, as to decay, etc., of teeth in ancient times.

Out of 8,481 teeth examined, 2,493, or 29.4 per cent had been diseased. The second paper of this section, and last of the session, was by Dr. J. D. Patterson, and entitled "*the effects upon the tissues of the oral cavity produced by the internal administration of certain drugs.*"

The principal object of this paper appears to have been the disproval of the commonly accepted theory both by the doctors and the laity, of *mercurial sore mouth*—" salivation "—" ptyalism; " and to account for appearances from causes other than the metallic poison.

We incline to believe with some of the old-timers who discussed the question that the theory is well enough established to be accounted a fact. One might as well dispute the truth of "*fever'n ager,*" as that specific action of mercury on the mouth, so generally known and recognized in this country from twenty to forty years ago. The writer hereof has seen many cases, and having experienced the affection in his own mouth, would be a hard one to convince that mercurial ptyalism, unlike anything else in heaven above or earth beneath, is a myth.

A supplemental report of Section VI gives names, location and officers of all the dental societies in the United States—119 all told. There should be another, and probably is by this time. N.

MEMORANDA.

Alumnol is a good astringent, one to four per cent in water.

Dr. Samuel Rambo, of Rio de Janeiro, is in the United States.

Dr. C. N. Kendall, a well-known dentist of Woodstock, Ill., is deceased.

Dr. R. R. Andrews, of Cambridge, Mass., has spent a couple of weeks looking at the Exposition with his family.

Dr. G. Carleton Brown, Chairman of the Registration Committee of the Dental Congress, paid a flying visit to Chicago in May.

One of the journals in Paris says of John Bull, *Re* The Dental Congress.
Moi Seul C'est assez!

The *Southern Dental Journal* and the *Dental Luminary* have consolidated under the name of the *Southern Dental Journal and Luminary*. The journal is still edited by Dr. H. H. Johnson, and is now published at Macon, Ga.

Membership tickets to the Congress may be had of the chairman, Dr. G. C. Brown, Elizabeth, New Jersey; Dr. Geo. N. West, 34 Monroe Street, Chicago; or Dr. E. L. Clifford, 34 Washington Street, Chicago; or the treasurer, Dr. Marshall, Venetian building.

Dr. A. Pattauf, Professor of Medical Jurisprudence at the University of Vienna, died recently at the age of thirty-three. Dr. Pattauf was the author of the chapter on Forensic Dentistry in the "Handbuch der Zahnheilkunde," J. Scheff, Jr., editor.

The best antidotes for cocaine poisoning are: Ammonia, nitrite of amyl—ether inhalations to keep up respiration. Do not inject more than three-quarters grain cocaine hydrochlorate combined with a two or three per cent solution of resorcin. Paste this in your hat!

IOWA STATE DENTAL SOCIETY.

President, T. L. James, Fairfield, Ia.; Vice-Pres., H. A. Woodbury, Council Bluffs, Ia.; Secretary, F. T. Breene, Iowa City, Ia.; Treasurer, A. R. Begun, Des Moines, Ia. Next place of meeting, Council Bluffs, Ia.

A DREAM.

The professor of hygiene had gotten off one of his wittiest sayings, and with bowed head awaited for a full moment the customary round of applause, when he raised his eyes and saw, to his astonishment, that the room was uninhabited and the seats were in tiers!

THE REASON WHY.

"That is a very fine dog you have, Johnnie."
"Yes, but he is consumptive."
"Consumptive! Why do you say that?"
"He's spitz blood, you know."—*Exchange.*

Dr. S. Doughty, Cherokee, Iowa, Dr. Geo. L. Field, Detroit, Michigan, Dr. W. N. Morrison, St. Louis, Mo., Dr. Higgins of Sacramento, California, Dr. Frank B. Darby, Elmira, New York, Dr. W. F. Lewis, Oakland, California, Dr. W. Warnekros, Tombstone, Arizona, Dr. L. W. Lyon of St. Paul and L. W. Skidmore, Moline, Ill., have already taken in the Exposition at Chicago.

The American Medical Association has a section on Dental and Oral Surgery but the British Dental Association has no representation in the British Medical Association. Once there was an Association of medical men practicing dentistry in London but it now is defunct. All organized dentistry in Great Britain, is organized on the independent basis, there being no alliance with medicine officially.

The Columbia Dental Club was opened Saturday evening, May 20th, at 300 Michigan Ave. There were about 100 present. There are sixteen rooms in the house devoted to club purposes, a café has been opened. After June 15th there will be an "Information bureau." Dentists can have letters addressed in care of the club. It is hoped that many dentists not now enrolled as members will send their names to the Secretary, J. W. Wassall, 208 Dearborn Avenue.

THE MISSOURI STATE DENTAL ASSOCIATION.

The twenty-ninth annual meeting of the Missouri State Dental Association will be held at Excelsior Springs, Mo., July 11, 12, 13, 14 inclusive. All dentists are invited to attend, as the meeting promises to be of great value to the profession.

Wm. Conrad, Secretary,
321 N. Grand Ave., St. Louis, Mo.

CLINICS AND EXHIBITS.

Operative clinics will be given in the rooms of the Chicago College of Dental Surgery, 100-102 Michigan Avenue. Prosthetic clinics in the rooms of the Northwestern University Dental School corner Indiana Ave. and Twenty-second street. Dental exhibits in the rooms of the American College of Dental Surgery, 479 Wabash Ave. Microscopical and lantern exhibits in the Memorial Art Palace, Michigan Avenue and Adams street, Lake Front.

HEADACHE POWDER.

Caffeine citrate Sodii bicarb	āā 40 grains
Lactopeptine	grs. xv

M. ft. pulv. No. xx.
Sig. One every two hours until relieved.

39.—EXPECTORANT MIXTURE. [DUJARDIN-BEAUMETZ.]

Ammonium Chloride	5 grammes	[75 grains]
Hyoscyamus Extract	10 centigr.	[1½ "]

Tartar Emetic	5 centigr.	[¾ grain]
Liquorice Juice	10 grammes	[2½ fl.drs.]
Tilia Water	200 "	[6¼ fl. oz.]

A tablespoonful every hour.

NEBRASKA STATE DENTAL SOCIETY.

President, F. T. Skede, Seward; Vice President, J. A. Diffenbacher, York; Recording Secretary, J. S. McCleery, Beatrice; Corresponding Secretary, W. C. Davis, Lincoln; Treasurer, H. J. Cole, Norfolk. Next place of meeting, Omaha, in joint session with the Iowa State Dental Society.

SYPHILIS.

Differential diagnosis between soft chancre and syphilis.—J. C. Day, M. D.

The author states, among other points, that soft chancre makes its appearance immediately after infection, is followed by *suppurated bubo*, is merely a local disease, does not require mercury for its cure, and is capable of being destroyed by caustics; while syphilis appears only several weeks after infection, is followed by *indurated bubo*, is a constitutional disease, requires mercury for its cure, and can not be destroyed by the use of caustics.—*Medical Times and Hospital Gazette.*

Have you joined the Columbia Dental Club? If not, send $15 to the Secretary and help keep open a comfortable headquarters for visiting dentists, not only to the Dental Congress, but to the World's Fair. The club house is open daily from 7 A. M. until midnight. Dentists can have their mail addressed in care of the club. Any dentist having curios, pictures or other objects d' art may loan such articles for club decoration and they will be returned after the close of the Exposition. This is addressed to dentists in Michigan, Indiana, Kentucky, Missouri, Iowa, Illinois and Wisconsin. "We will pay the freight."

Will you kindy say to the readers of your journal in your next issue that the house of the Columbia Dental Club of Chicago, No. 300 Michigan Ave., is open to the members of the profession who visit Chicago this summer, and a cordial invitation is extended to them to make it their headquarters while in the city. You might also say that if it is so desired by addressing the manager of our Bureau of Information, R. C. Brophy, in care of the club, they can secure such rooming accommodatins as they wish. Very truly,

FRANK H. GARDINER, Chair. Local Com. on Entertainment. W. C. D. C.

ILLINOIS STATE DENTAL SOCIETY.

The twenty-ninth annual meeting of the Illinois State Dental Society was held in conjunction with the Iowa State Dental Society at Rock Island and Davenport, May 9–12, 1893. The following officers were elected for the ensuing year:

Garrett Newkirk, Chicago, President; J. W. Cormany, Mt. Carroll, Vice President; Louis Ottofy, Chicago, Secretary; W. A. Stevens, Chicago, Treasurer; F. H. McIntosh, Bloomington, Librarian.

LOUIS OTTOFY,
Secretary.

ALKALINE ANTISEPTIC TOOTH POWDER.

Precip. chalk	28 ozs.
Powdered Castile soap	8 ozs.

Acid. salicylic	20 grains
Sodium bicarb	1 oz.
Sodium borate	1 oz.
Sodium benzoate Sodium salicylate Sodium chloride	āā 20 grains
Eucalyptol	10 minims
Thymol	10 grains
Menthol	5 grains
Oil wintergreen	2 drams

DEATHS UNDER ANÆSTHETICS.

Gurlt reported to the last surgical congress at Berlin, the following statistics of deaths under anæsthetics. They are made up from the observations of 62 operators, who anæsthetized 109,196 persons with 39 fatal results, showing 1 death to 2,800 narcoses. The following were the anæsthetics used:

Chloroform, 94,123 narcoses; 36 deaths.

Ether, 9,431 narcoses; no deaths.

Ether and chloroform, 2,891 narcoses; 1 death.

Ether and alcohol, 1,381 narcoses; no deaths.

Bromoform with ethyl bromide, 2,151 narcoses; 1 death.

Pental, 210 narcoses; 1 death.

In 2,913 cases the narcosis lasted over an hour; in an operation for utero-vaginal fistula, 4½ hours; in a case of tetanus, 9 hours. In 25 cases, of which post-mortem examinations were made, cardiac diseases were found. The author urges careful examination of the heart before administering chloroform.—*Cond. Extracts.*

REDUCTION IN FARES TO MEMBERS OF THE INTERNATIONAL MEDICAL CONGRESS TO BE HELD IN ROME FROM SEPTEMBER 24TH TO OCTOBER 1ST, 1893.

The North German Lloyd, 2 Bowling Green, N. Y., offers a reduction of 25 per cent to members going to and coming from the 11th International Medical Congress, on Steamer Werra, which is to sail from New York on August 5th and September 9th, and on Steamer Fulda, on August 19th. Both these steamers sail to Genoa. The same reduction will be made for the return trips in October and November, on the same steamers, and for the Company's Saturday, (off Bremen, Sunday off Southampton,) steamers.

The Hamburg-American Packet Co., 37 Broadway, N. Y., 125 La Salle Street, Chicago, offers a reduction of 25 per cent, both out and return, for all its steamers during the year 1893.

The Compagnie Générale Transatlantique, 3 Bowling Green, N. Y., offers the rates which are allowed French officers, that is, $63.50 for an $80 accommodation and $91.50 for a $120 accommodation.

Provision is also made for special reduced rates on the railways of the countries which the members of the Congress are to traverse.

DETECTION OF FIXED IN VOLATILE OILS.

A foreign writer says that in testing volatile oils the adulteration of fatty oils, resins, etc., is the clumsiest of all adulterations and can be detected without much difficulty.

The test is based upon the fact that nearly all volatile oils are soluble in strong alcohol, which is not the case with fatty oils, the only exception being castor oil, which is soluble in alcohol and is therefore most frequently used for the adulteration of volatile oils.

To detect the presence of a fatty oil place a drop of the suspected sample upon white paper and expose it for a short time to heat. If it evaporates completely the oil is pure. But frequently a transparent stain remains with old oils without their being adulterated, which is due to resin formed by the absorption of oxygen and remaining dissolved in the oil. In this case a transparent ring is generally formed by the concentration of the resin on the edges of the stain.

If no tangible results are obtained by this test, pour a few cubic centimeters of the oil upon a watch glass and heat it very slowly upon a piece of sheet iron until all the odor has disappeared. If the watch glass becomes empty in a short time nothing but volatile oil was present, but if a viscous residue remains this may consist either of fatty oils or resin, or of both.

Treat the residue with strong alcohol; if it dissolves it may be resin or castor oil. Dilute the solution with much water; a white flocculent turbidity indicates resin; the separation of an oily liquid, after standing, castor oil. If the residue remains undissolved it consists of a fatty oil, generally oil of almond or olive.

The presence of castor oil can be accurately determined by bringing the residue from the watch glass into a test tube by means of a glass rod and compounding it with a few drops of nitric acid. A strong development of gas takes place, after the cessation of which solution of soda is added as long as there is any sign of effervescence. If the added fatty oil was castor oil the contents of the test tube will show a peculiar odor due to œnanthylic acid formed by the action of nitric acid upon castor oil.

SOME ERRONEOUS IDEAS ON PTOMAINES.

Considerable misconception—not to say fundamental ignorance—is prevalent on the subject of ptomaines. This may clearly be seen from letters and articles which have appeared in the press since the recent sardine poisoning case, and also from statements made by medical men under conditions calculated to lend authority to their utterances.

A case recently tried in a northern town, and an inquest held only a few miles from the same town, have brought out assertions regarding ptomaines which are almost as erroneous as the announcement in a popular weekly review that "ptomaines are bacteria."

As for obvious reasons the erroneous statements made in connection with this subject are extremely dangerous, since they may lure the public into a feeling of safety or comfortable responsibility, it is desirable to point out some of the commoner and, at the same time, more dangerous, misconceptions in regard to these poisons.

We hear it stated sometimes that all ptomaines are destroyed by such an amount as is employed in the ordinary process of cooking. This might be so, if it were the case that ptomaines were bacteria; but if it were so, cases of food poisoning would be unheard of. Any one acquainted with Brieger's work and the chemistry of these toxines, knows how stable and resistant against heat almost all, and especially the more important, ptomaines are; and that, therefore, there can be no safety in boiling so far as the destruction of these bodies is concerned. Moreover, in the separation of many of these substances, heat is constantly employed without the slightest effect on their toxic properties. Analogous observations are almost daily made during the preparation of the chemical products from pure cultures of bacteria, where heat is constantly used to destroy the microörganisms. If there be death in the pot, generally speaking no amount of boiling will prevent it.

Another statement which invites unqualified dissent is, that by boiling the poison will be distilled out and so much diluted by the water used as to become innocuous. Most ptomaines—there are exceptions—are very soluble in water, but it is absurd to assume that if hidden in the center of a piece of meat they would diffuse through the tissues and be dissolved and diluted.

Lastly, the fact that of several people who have partaken of a tainted article of food only one has suffered has been used as an argument against the toxic nature of such food in any particular case. Can anything be more erroneous? The poison may be extremely localized in a particular piece of meat, the rest being free from it; and when we have to deal with a number of fish packed in the same can, some only may be tainted, as was well shown in the case investigated by Dr. Stevenson, as here, moreover, the boiling oil in which the sardines are placed had not destroyed the lethal substance.

The prevention of food poisoning is a problem of extreme difficulty. In the meantime, however, we must remain fully alive to all the results of accurate chemical and physiological observations, and not lull ourselves into a feeling of safety while we may be face to face with death, all the more deplorable as it is unforeseen, accidental, and fortunately rare.

HOTEL ACCOMODATIONS DURING THE CONGRESS AND BEFORE IT CONVENES.

The best way to secure accommodations will be to write to Mr. R. C. Brophy, manager of the Information Bureau of the Columbia Dental Club, 300 Michigan Avenue, who will secure accommodations in any part of Chicago or the suburbs at prices to suit the most moderate purse. Mr. Brophy has a list of more than one thousand rooms less than a mile from the Art Palace, at very low prices. He will undertake to secure for you just what is wanted. Do not hesitate to say how much or how little you desire to pay, whether with or without meals. By securing rooms now much money will be saved, as in August there will be large numbers of visitors to the Fair and prices for rooms will be in greater demand at higher rates.

The following hotels are selected from a list of the best in the city, and dentists wishing accommodations can select therefrom according to their wishes.

Some are in the immediate vicinity of the World's Fair, others midway between it and the center of the city, others in the city and some on the West and North sides of Chicago.

NEAR THE WORLD'S FAIR.

The South Pier Hotel, Windsor Park, European plan. $1.00 and upward.

The Isabella Hotel, corner of 61st and Oglesby Avenue, European. $1.50 per day and upward.

Chicago Beach Hotel, four blocks from World's Fair Grounds, American. $5.00 per day and upward.

The World's Inn, 60th Street and Madison Avenue, European. $2.00 per day and upward.

The Waukesha, 64th Street, one block from the World's Fair main entrance, European. $1.50 to $5 per day.

Hotel Ingram, 60th Street and Washington Avenue, European plan.

Renfost Hotel, 52d Street and Cottage Grove Avenue, European. $2 and upward.

The Andreas, American and European Hotel. Rates, $2 per day. Corner Stony Island Boulevard and 72d Street.

The "Bankers," two blocks from entrance, 62d Street, European. $2.00.

The Genoa, one block from entrance, 62d Street, European. $2.00,

The Ramona, three blocks from entrance, 66th Place, European. $1.50.

The Albert, three blocks from entrance, Madison Avenue, European. $2.00.

The Savoy, American and European Hotel, corner, 55th Street and Jefferson Avenue. Rates, $3 to $5 per day.

MIDWAY BETWEEN THE FAIR AND THE CITY.

Lakota, Michigan Avenue and 30th Street, American and European. $5 per day and upward.

Lexington, Michigan Avenue and 22d Street, American and European. High price.

Hotel Oakland, Drexel and Oakwood Boulevards, American and European. Moderate.

CITY.

The Beveridge. American and European Hotel, corner 26th St. and Calumet Avenue. Rates, $3 to $5 per day.

Tremont House, American. $4 per day and upward.

Hotel Grace, European. $1.00 per day and upward.

Hotel Brevoort, European. $1.50 per day and upward.

Sherman House, American, $4 per day and upward.

Grand Pacific, American, $5 per day and upward.

Palmer House, American and European.

Great Northern, European, high.

Niagara Hotel, European. $1 per day and upward.

Windsor European Hotel, $1 to $1.50 per day.

Commercial Hotel, American, $2 to $3.

Gore's European Hotel. $1 per day and upward.

Leland Hotel, American and European.

The Victoria, European. Moderate.

The Auditorium, European and American, high priced.

The Clifton House, American. $2.50 and $3 per day.

Great Western Hotel, corner Jackson and Franklin Streets, American and European Hotel. Rates, $1.50 to $2 per day.

Hotel Du Nord, Wabash Avenue, adjoining Palmer House, European. $1.50 per day.

Hotel La Fayette, Harrison Street, near Michigan Avenue, European. $1.50; American, $2.50.

Hotel Wilson, Michigan Avenue, between Hubbard and Eldridge Courts. European. $1.00 and upward.

Hotel Calanthe, Michigan Avenue, near 12th Street, European. $1.00 per day and upward.

Hotel Savoy, Michigan Avenue, near 12th, European. $1.50 per day and upward.

Hotel Glencoe, Michigan Avenue, near 12th, European. $1.50 per day and upward.

Hotel Imperial, Michigan Avenue, corner 12th Street, European and American. $3.50 to $8.00

Hotel Stamford, Michigan Avenue, corner 13th, European. $2.00 and upward,

Hotel Redd, Wabash Avenue, corner 12th, European. $1.50 and upward.

Hotel Delmar, Wabash Avenue, near 14th Street, European. $1.50 per day and upward.

NORTH SIDE.

Revere House, Clark and Michigan Streets, American, $2.50 and $3; European, 75c, $1 and $1.50.

Virginia, Rush and Ohio Streets, American, very high priced.

WEST SIDE.

Gault House, Madison and Clinton Streets, American. $2 and $2.50 per day.

Chicago View Hotel, Madison Street and Ashland Boulevard, European. $1.50 per day and upward.

THE WORLD'S COLUMBIAN DENTAL CONGRESS, CHICAGO, ILL., AUGUST 14 TO 19, 1893.

The movement to hold a Dental Congress in Chicago, Illinois, August 14 to 19, 1893, inclusive, received its official status from the joint action of the Southern Dental Association at its meeting in July, 1890, held at Atlanta, Georgia, and the meeting of the American Dental Association held at Excelsior Springs, Missouri, in August, 1890. The undersigned General Executive Committee was appointed by the two Associations to adopt Rules and Regulations, fix the time for convening the Congress, secure the place for holding the sessions, and make such other preliminary arrangements as it deemed necessary.

The work of appointing committees to promote the success of the Congress is finished, the permanent officers have been chosen, the honorary officers have been appointed in all foreign countries, and the time and place of meeting fixed.

A general invitation has been issued, asking the coöperation of the reputable dentists of the civilized world to meet with the dentists of the United States of America at the time and place fixed, for the presentation of papers, both scientific and practical, covering the entire range of theory and technology. It is believed that the newest investigations, discoveries, and methods in physiology, histology, bacteriology, pathology, oral surgery, chemistry, materia medica, therapeutics, orthodontia, operative dentistry, prosthesis, and deontology will be presented to this Congress in a manner not heretofore attempted in any international gathering of a similar character.

It is with pleasure, therefore, that we appeal to the dentists of America to assist in this great undertaking, which promises so much for the future of dentistry and dental surgery, in placing its practical and humanitarian objects before the public at large. This Congress will be an educator of such vast proportions to the practitioners of dentistry, that few can realize the direct benefits which will accrue, not only to those participating, but to those who deny themselves the opportunity to make history for the generations yet to follow.

The Transactions, when printed, will be a permanent record of scientific development that may well serve as a starting point in future professional advancement, education, legislation, and prophylaxis.

Nothing will be omitted to provide for the comfort and entertainmeut of those who lend their presence for the furtherance of the objects of this Congress, and a programme of such literary merit will be presented as shall reflect in the clearest manner the past history and present development of dental science, including also the practical demonstration of every phase of operations known. These demonstrations will be made by those best fitted by native ingenuity, education, and technical skill in bacteriology, histology, pathology, oral surgery, and other more directly practical subjects, such as orthodontia, prosthesis, electricity, and mechanical operations on the teeth, jaws, and associate parts.

The facilities for meetings and clinical demonstrations are ample to accommodate all who are entitled to admission to the Congress. The Memorial Art Palace is situated near the center of transportation, it is isolated from traffic, and is well lighted and ventilated.

The general headquarters will be located at 300 Michigan Avenue, within ten minutes' walk of the assembly rooms. All communications to the Secretary or the General Executive Committee to be sent to this address after July 15.

The profession in America must now assume the responsibility of making this Congress a success, on the lines laid out by the General Executive Committee. This can only be accomplished by the immediate response of those who contemplate being present in person, or by contribution, financial of otherwise.

The Committee urgently requests an immediate decision from those purposing to attend, in order to facilitate the work of the various departments, and reduce to a reasonable certainty the attendance from America.

Contributions of money should be made directly, and at once, to the Chairman of each State Finance Committee, for transmission to the Treasurer, who will issue his receipt for the same. Accompanying this circular are the Codified Rules and Regulations of the Congress, and instructions for the guidance of all.

Read this circular carefully, and preserve it for future reference. Adherents of the Congress will address letters of inquiry to the Secretary of the General Executive Committee, in order to receive an official reply.

Cordially and fraternally yours,

W. W. Walker, *Chairman of the General Executive Committee*, 67 W. 9th St., New York City, New York; A. O. Hunt, *Secretary of the General Executive Committee*, Iowa City, Iowa; L. D. Shepard, *President of the Congress*, 330 Dartmouth Street, Boston, Massachusetts; A. W. Harlan, *Secretary-General of the Congress*, 1000 Masonic Temple, Chicago, Illinois; John S. Marshall, *Treasurer*, Venetian

Building, Chicago, Illinois; W, J. Barton, Paris, Texas; L. D. Carpenter, Atlanta, Georgia; J. Y. Crawford, Nashville, Tennessee; M. W. Foster, 9 Franklin Street, Baltimore, Maryland; H. J. McKellops, 2630 Washington Avenue, St. Louis, Missouri; G. W. McElhaney, Columbus, Georgia; H. B. Noble, New York Avenue, Washington, D. C.; John C. Storey, Dallas, Texas; C. S. Stockton, Newark, New Jersey; J. Taft, 122 West Seventh Street, Cincinnati, Ohio,

Members of the General Executive Committee.

FINANCES.

Desiring that every reputable member of the dental profession shall be identified with the Congress—

Resolved, That a payment of ten dollars ($10.00) shall entitle one to the Transactions and to Membership if eligible;

That a payment of twenty dollars ($20.00) shall entitle one to the Transactions and to Membership as above, and to the Commemorative Medal;

That a payment of thirty dollars ($30.00) or upward shall have all the advantages of the twenty-dollar ($20.00) subscription, and also recognition as a contributor to the financial success of the Congress;

That any student presenting a certificate from the Dean or Secretary of a reputable Dental College shall be entitled to Student Membership, and also to a copy of the Transactions, on the payment of five dollars ($5.00.)

RULES AND REGULATIONS.

All public announcements for the General Executive Committee shall bear the signatures of both the Chairman and the Secretary.

The admission fee to the World's Columbian Dental Congress shall be fixed at ten dollars, to be collected only from residents of the United States.

All papers to be read before the Congress shall be in the hands of the Committee on Printing Transactions not later than July 1, and shall not exceed forty-five minutes in the time of presentation. Said Committee shall have full power to accept or reject any paper, to revise, or suggest a revision by the authors, and to publish or not in the Transactions the whole or parts of papers read, or abridgments thereof.

The official languages of the Congress shall be English, French, Spanish, and German, and the papers shall be printed, in the Transactions, in the languages in which they are read.

After a paper has been accepted, the Committee shall prepare a brief synopsis to be published in the official languages of the Congress.

The Chairman of each Committee shall send reports of its progress to the Chairman and Secretary of the General Executive Committee at such frequent intervals as will keep them informed of all the work accomplished.

All circulars issued by any Committee must be sent to each member of the General Executive Committee, and they shall be of uniform size—viz, that of the minute forms issued by the Secretary.

The Dental Congress offers a medal for the best popular paper on Dental Hygiene, for public distribution; to be referred to Committee No. 23, to be called the Committee on Prize Essays.

All matters of business presented at the general sessions of the Congress shall be referred to the General Executive Committee, and must receive the endorsement of the Committee before they can be entertained by the President of the Congress.

The management of the World's Congress Auxiliary of the Columbian Exposition have offered suitable accommodations in the Memorial Art Palace, on the lake front, in Chicago, for the sessions of the World's Columbian Dental Congress, August 14, 1893.

SNUBBED AGAIN.

At the late B. D. A. meeting at Birmingham, England, the Association decided *not* to accept the courteous invitation of the Dental Section of the Eleventh International Medical Congress to attend the meeting in Rome. Two or three self-appointed censors are running things with a high hand in "merrie Old England" now, but wait "yet a little," and they will want help of some sort to bridge over a chasm and then we shall see new hands at the helm. For such a short session (three days) such an amount of intolerant insolence and discourtesy was never known to have been exhibited by any scientific or professional body, toward similar organizations engaged in humanitarian objects. We feel certain that if the members of the B. D. A. understood things more correctly they would flock to Chicago and Rome like frightened sparrows seeking a haven.

OBITUARY.

Dr. J. A. Kennicott.

Another pioneer dentist has passed away. Dr. Jonathan A. Kennicott died at his home, 4802 Madison Avenue, at 9 o'clock, P. M., Friday, May 12th, being ill only a few hours. Dr. Kennicott was born in 1824, in Albion county, N. Y., he studied dentistry with his brother, Dr. William H. Kennicott, who was one of the pioneer dentists of Chicago, establishing first his dental office in the city in 1836. Dr. Kennicott went to Milwaukee in 1849 and opened an office, returning the following year to Chicago and establishing his practice in that city, since which time and up to five years ago he has been actively at work in his profession, at that time he had a partial stroke of paralysis, which retired him from practice. In 1854 he married Miss Antalnett, daughter of the late Allen Fiske. He established a beautiful home at Hyde Park, which he named Kenwood. His family is of Scotch descent and comes from the same stock which gave to England the noted Greek scholar and author, Dr. Robert Kennicott, of London.

Dr. Kennicott made the subject of dental science a close study, and was an acknowledged authority in the most advanced times of modern research. He loved to cultivate rare and beautiful flowers and his office and patients always had abundance of them. He leaves a widow and three daughters, two of whom are married.

RESOLUTIONS OF THE NEBRASKA STATE DENTAL SOCIETY ON THE DEATH OF DR. W. W. ALLPORT.

WHEREAS, This society has learned with sorrow of the death of Dr. W. W. Allport, of Chicago, and of the loss sustained by the profession at large. Therefore, be it

Resolved, That as Dr. Allport was a man of high and lofty principles, ever ready to help the weak, quick to detect fraud, ever right in his dealings with his fellowmen, high and exalted in his attainments in the profession of his early adoption, it is but right and just that we, the members of this society, express our regard for one whose labors were confined not to the State and city in which he lived, but were as broad as his calling.

Resolved, That we tender our heartfelt sympathy to the family of the deceased, and that a copy of these resolutions be sent to the family of the deceased, and to the DENTAL REVIEW.

W. C. DAVIS, *Corresponding Secretary.*

RESOLUTIONS ADOPTED BY THE ODONTOLOGICAL SOCIETY OF CHICAGO.

WHEREAS, In the death of Dr. W. W. Allport, a leader in our profession has fallen and as a mark of our appreciation of his services and skill, be it

Resolved, That in his death the dental profession has lost a member whose extraordinary skill as an operator placed him among the foremost dentists of the world. His work in promoting the highest interests of the profession will ever be conspicuous and the prosperity enjoyed by younger members is due in a great measure to his achievements.

Resolved, That a copy of this preamble and resolutions be sent in proper form to the family of the deceased and to the dental journals for publication.

TRUMAN W. BROPHY,
A. W. HARLAN,
F. H. GARDINER.

RESOLUTIONS ADOPTED BY THE CHICAGO DENTAL SOCIETY, TUESDAY EVENING, JUNE 6TH, 1893, ON THE DEATH OF DR. W. W. ALLPORT.

WHEREAS, In the death of Dr. W. W. Allport, a leader in our profession has fallen, and as a mark of our appreciation of his services and skill, be it

Resolved, That in his death the dental profession has lost a member whose extraordinary skill as an operator placed him among the foremost dentists of the world; his work in promoting the highest interests of the profession will ever be conspicuous, and the prosperity enjoyed by the younger members is due in a great measure to his achievements.

Resolved, That a copy of this preamble and resolutions be sent in proper form to the family of the deceased and also to the dental journals for publication.

TRUMAN W. BROPHY, }
A. W. HARLAN, } *Committee.*
J. N. CROUSE, }

THE

DENTAL REVIEW.

VOL. VII. CHICAGO, JULY 15, 1893. No. 7

ORIGINAL COMMUNICATIONS.

A LETTER TO THE CHAIRMAN OF THE COMMITTEE ON NOMENCLATURE.

CHICAGO, ILL., June 15, 1893.

DR. G. V. BLACK, Jacksonville, Ill.

Dear Sir:—It was a month ago, at the meeting in Rock Island and Davenport, where I had the honor of making your acquaintance, that you handed to me an exposé on the subject of nomenclature, and asked me to study it and to write you a letter with my opinion upon the scheme which you have devised for a universal system. It affords me great pleasure to accede to your kind desire, but before I respectfully submit to you such suggestions as I think best, I wish to assure you, dear sir, of my highest consideration for the extensive labor and deep thought which you have devoted to the problem, a problem which was so much the more difficult, as you had to do the work of a pioneer in an entirely new field, and I am convinced that all who followed your succinct lecture must have acquired a clearness which will assist them materially in their own researches. So, for my part, please let me thank you, that by such instruction you have helped me out of my own inferiority so that I am now enabled to discuss the matter on a broad scale.

The object of science is to ascertain new truths; that of nomenclature is to postulate such concise names that no further explanations are required in order to let these truths safely achieve the most exact interpretation with the greatest number of nations, or rather with all. While science does the work of inquiry, nomenclature has to take care of the formulation of the means and results of such inquiry, and thus I may say, that knowledge finds its amplification qualitatively through science and quantitatively through nomenclature which manages a universal distribution of what the wit of man has devised. Science acquires and accumulates, nomenclature diffuses knowledge.

There is no state of rest for either, both are constantly improving and progressing, or, as you said it, "they are necessarily a growth," and while science propagates incessantly new discoveries, nomenclature diffuses them in proper shape over the world.

Before investigating the question : What is the most perfect plan for spreading the acquisitions of the human mind abroad through the channels of nomenclature, it may, however, be just to ask if the display of scientific ideas is at all free and unrestricted, or if there is a conspiracy of silence? For what can the best nomenclature help when entire streams of thought are ruthlessly suppressed, and when the best advancements are kept away from the front of the profession? Is there such a conspiracy, is the independence of dental science a farce, is the truth tied and knowledge restricted? It seems not; for as often as a party of malcontents who had formerly complained of "tyranny," was enabled to establish their own journal, this journal did not reveal anything that had before been prevented from publication, it produced no thoughts which had been imprisoned, it manifested no systems which had been refused, nor did it generate a spirit whose conception had formerly been discouraged.

And yet while there is no real oppression of scientific dental literature we have yet reason to fear that the growth of our profession is somewhat checked or delayed by two remnants of illiberality which unintentionally restrict the free exchange of thought and therefore ought to be abolished in the interest of progress. These restrictions are the barriers surrounding the full discussion of papers.

The one barrier is that the papers are not published at least two weeks before they are discussed, so that the profession can consider them with such thoroughness as they deserve. The unpracticalness of this procedure is obvious, for as the papers are given to print anyhow, why not print and distribute them as early as possible? Why chastise an illustrious auditory with the hasty declamation of an essay which requires for understanding a careful study, often under assistance of books or experiments, an essay containing thoughts often difficultly comprehended even after repeated perusal in silent solitude? How can such a hurried lecture be even partly digested in an over-crowded and often noisy and over-heated assembly? Is it perhaps delightful to hear a man read who is no trained professional recitator, or is it not rather an unjustified outrage which exhausts the auditory often more than the essayist?

Dr. Kirk, as Chairman of the committee on essays, wrote recently a letter to France wherein he says: "The motive for demanding that the essays to be read at the congress shall be handed to the committee on publications at least three months before the opening of the congress is the desire to announce to the profession the titles and object of these papers so as to enable the members of the profession to prepare themselves for discussion."

This intention is very laudable, but would it not have been much better to publish the entire papers in advance? Would that not enable the profession decidedly better to come forward with a thorough discussion? Who knows how many men give all discussion entirely up, because they fear or feel that their insufficient knowledge of what the essayist really means or said does not enable them to a competent discussion? And who knows what those who join the discussion would really say when they would have prepared themselves and thought over the matter repeatedly instead of extemporizing a moment's unqualified thoughts? The result would, no doubt, be that the meetings would have a fuller attendance not only because the scourge of monotonous declamation would be taken away from the defenseless auditory which struggles in vain for an explanation of what has escaped the ear in one moment, or what was too hard to assimilate in another moment, not only because the essayist would only give a short review (a synopsis or syllabus) of the salient points of his communication (published in full a month ago) and speak free from the shoulder just as his heart's emotion may suggest to him; not only because this would do away forever with the most terrible moments in the dentist's career (the paralyzing injections of reading), but also because everybody would feel enabled to join the discussion, a discussion so solid and comprehensive that it would really represent a series of excellent essays only with the difference that these essays are no monologues any more and contain not the narcotizing poison of "canned reading," or "brain conserves," which by their mostly stale and unpalatable mode of declamation benumb the desperate hearers.

The other barrier is the unworthy habit of making the motion to pass a subject. Such a procedure is practically an act of violence and unbecoming any scientific body. By such a motion anybody can be prevented from expressing his opinion, for the discussion is forcibly cut off. The code of ethics, *i. e.*, not the written code, but the unchangeable, immortal and eternal code of ethics which requires no statutory limits, is trembled down in an eclatant despotical manner by such a procedure. All the old English authors to whom the world is indebted for the establishment of the fundamental laws for the free and highest development of the human intellect have unanimously condemned every attack on and every restriction of the liberty of thought in speech and print. The English parliament has strictly accepted this law, and no speaker can there be interrupted in his speech, and would he even talk for three days and three nights in one succession. All parliaments who have adopted this rule have brought their nations to success, honor and progress, whereas everywhere that the liberty of speech is undermined the welfare of the majority (hence of the nation) will be found at stake.

How under such circumstances can a scientific body dare to cover itself with the disgrace of undermining the free discussion? This is incompatible with science, and therefore this shameful scheme ought to be henceforth relinquished once and forever in all countries and by all scientific societies, especially however, in the United States, as it runs directly against the noble message of the immortal Declaration of Independence which spreads its light over the entire world. When this necessity had not been comprehended by all men of science it was no doubt only due to their lack of attention in this regard; but it is now the highest time to mend the serious mistake and to grant unrestricted liberty to every opinion and to every speaker. Should the discussion last too long and it become too late, the chairman may make the request to cut the speeches short and to say only such things as are really new, but to rule out any speakers should be impossible. The least sense of tact will cause every speaker to occupy not more than five or ten minutes, but no abridgment should be enforced and the two barriers which prevent the outbreak of scientific thought in the most noble moments of emotion and conviction should be torn down.

On the other hand the editors of all scientific journals should be obliged to publish only such articles and notes which are signed by the author. All anonymous communications should hence be excluded from the press. Such policy is necessary in the interest of truth, of which the World's Fair entrance-arch says: "Ye shall find the truth and the truth shall make ye free."

This is what might be said about the possibility of a scientific intercourse, and I can return now to nomenclature which treats of the best mediums for such intercourse. There are probably thousands of men who had to sacrifice sleep and youth for the defects of nomenclature; others, again, even abandoned the study of foreign scientific literature entirely because they met with too many difficulties in untranslatable technical terms, and thus they did not only fall short of their aims and their career, but their services to their patients and scholars were of less good (if in some cases they did not entirely fail), as the achievements of the great men of other nations could not come to their benefit. Not only this, even in his own mother language the student is often baffled by enigmas, for just the word which is the keynote to the entire instruction may be vague and undefinable, so that he has to give up the acquisition of knowledge. Disheartening is such a struggle when the study which ought to be a pleasure, worries the young soul and discourages the ablest mind. Many say farewell, if not to the profession, to (what is worse yet) true science and become an undesirable element of doctors.

But not all of the vassals of science perish in the hardships of interpretation; on the contrary every day brings new conquerors, and at present the armories of nomenclature are well filled, and only a system is required which brings a little more order into the technical expressions. How can we get the desired universal system which will prevent the many failures described above, how can we "discover the laws toward which the usage of the technical words of dentistry is tending;" how can we establish the rules which will be convenient for every nation; how can we accommodate terms which will even provide for the discoveries of the future? These are the questions which puzzle our profession; and the nearer the congress is approaching, the more fervent grow the desires for a happy solution of the problem.

Is there any omen of a failure; is the enterprise too frantic; are the difficulties unsurmountable; is the time insufficient to devise the plan of dental nomenclature ? I can answer to all these injunctions with, "No !" The arguments with which I can support this "No" may follow, and, if I bear too much upon your patience, I hope you will forgive me in view of the manifoldness of the subject.

English, French and German are the three languages which come mostly in consideration for the presentation of a system of dental nomenclature, because nearly the entire dental literature has been published exclusively in these languages and at least ninety per cent of all dentists belong to or speak one of them. Moreover all rules which will satisfy these three nationalities will most probably also cover the needs of all others. We shall take therefore our examples from these languages only, as there is also no other language represented in the committee on nomenclature. It requires no profound observation to see that there has never, in the entire history of the world, been a time where all nations became so ostentatiously and pronouncedly engaged in emphasizing their special national peculiarities, customs and idioms as just at present. In all countries there have been founded special associations and leagues during the last decennium for the sole purpose of cultivating the sacred treasures of the nationality, and considerable parts of the sessions of the parliaments have been occupied with tendencies of strictly national character. To ignore this decided antipathy against exoticism would be a mistake, and hence also those who wish to reform nomenclature should avoid intrenching upon the natural crystallization of the national pride. A nomenclature overladen with extraneous elements would not suit the popular taste and might be swept away by a wave of national indignation.

Without being a philolog, it is easy to understand that out of the three languages the English was the most successful in the assimilation of scientific names, and this is indeed mostly due to the fact that "the bulk of all English terms are anglicised Latin words." The least fortunate in this respect is the German language which also owing to a foolish predilection for everything that is foreign, embraces thousands of French, Latin and English words which pollute this otherwise beautiful language; but since the peace of 1871 a thorough opposition against these un-German words has set in, and only those literary works are acknowledged now as classical which are written throughout in genuine German words. Severe was therefore the criticism when (during the last two years) there appeared in Vienna a voluminous text-book on dentistry, edited by Dr. Scheff and composed by thirty-nine German speaking Jews, which represents such an ugly mixture of foreign and German words that it is no more a language, but only a jargon.

This dislike of foreign words has however its limits and should not go so far as to displace domiciled terms or to make ridiculous constructions of "home words." So much is sure: foreign nations must keep away from those disputes which concern one nation only, for even the compatriots will not agree upon many of the points of contention because it is often a mere matter of taste and habit.

One strange circumstance deserves however mentioning here and that is, that there are real and good German words which are entirely unknown all over Germany, or at least the larger part of it, and hence they ought not to be used in German books without commentation. Such words are: *Fraisen* (an expression popular in Vienna) for *screaming fits* or *infantile convulsions*. Another word is *Delle* (which is a remnant of the medieval time) meaning *groove*. I do not know if such a state of things also occurs in America, but the word *dowel* (used for "post" in crown and bridge work) seems to be unknown to many Americans and can not be found in Webster's older editions.

If it were the object of nomenclature to make a collection of beauties we should be compelled to glean some words from every language for every one has its unique beauties; especially the French language is generally conceded to be the most beautiful and elegant language of the world, and there was a time, for many centuries, when the higher circles of Europe conversed in no other language than this.

On the other hand there are also words of superior practicalness in every individual language, and we should again be obliged to gather single words from every nation, should we desire to make a blow in this direction. The French word *se carier* for *to become carious* exists in no other language; also *insensibilisation* for *making insensible,* and further *odontéle* for *nodule of secondary dentine* have no equal. From the German language *Matrize* and *Patrize* for *matrix* and *puncheon* are preferable.

There are also words which are based on the peculiarity of the temperament of a nation and cannot be verbally reproduced in other languages; as the word *surexcitation*, which shows that for the French a word like *excitation* is not excited enough.

Other words again are entirely absent just in one language, while all other nations have them, and yet the deficient nations do not complain of this partial shortness or are not even aware of it. The Germans have no word for artificial set, though the French have *dentier* and the English have *denture*. The latter do not care about a word for anorexia, though the French enjoy *inappetence* and the Germans *Appetitlosigkeit*. While the French make *une aurification*, the Americans and Germans trouble themselves with a gold-filling (*Goldfüllung.*)

Great is the range of synonymous words, and I do not at all agree with your cruel verdict, dear doctor, that "redundant words must be refused place" in our nomenclature, for as we shall see later on, there is no necessity for a Bartholomew night. This is perhaps the only point wherein I differ from you, but it is a point of the utmost importance, and I have the feeling that all members of the committee on nomenclature, nay, really the entire profession were hitherto of your opinion, viz.: that all words which are identical in sense should be melted down to one, while the other unneeded terms had to be excommunicated. This murderous plan was originally also slumbering in my bosom, but I feel so much lighter since I have abandoned it that I think it must be a great relief for all who sink it down into the river Lethe. Let us for instance imagine a patient comes to a French dentist for *une extraction* and after *l' avulsion* the operator discovers pus oozing out from *le sinus maxillaire*, he treats *l' antre* antiseptically and after a short time *la cavité d' Hyghmore* heals up very nicely. *L' ablation* of the tooth was hence of a beneficial effect for *le cavum*, and when this is described in an essay of four or ten pages length it will certainly be more interesting than when only the words "*antrum*" and "*extraction*" are used.

When we come to draw a conclusion from these general considerations we might say: So innumerable are the words of every civilized language, so innumerable are its virtues and beauties, and so long as the ideal world's language has not been discovered, no vernacular language should be proposed to absorb the others. Every nation should use her own language as exclusively as possible and extirpate redundant foreign words in the interest of classical purity. The scientific terms should harmonize as much as possible with the popular language provided this does not deter accuracy. Words generally in use are as a rule preferable to such of rare or only local occurrence, modern words to antiquated ones. The best words are those requiring no commentation and having no double sense. Domiciled foreign words deserve more credit than clumsy native constructions of factitious artificiality. The antipathy against exotism is natural and just. With the suppression of her language the nation herself is suppressed. All languages are in a state of constant development and are not only the most precious property of each nation but also the product of the combined activity of the entire nation, whenever the poets and thinkers have the largest share in the enrichment of their languages. Every language has a repository which when it contains two languages is called dictionary. Dictionaries are never complete.

All this refers only to the popular language, but how is it now with the technical speech? Do the same laws hold good for professional literature and are they sufficient to cover all exigencies, or what rules have to be corrected or added? These are the questions which shall bring us to the point of our problem, but here again it may be permitted to consider first professional languages in general, before the special territory of the language of dentistry is entered.

From a general standpoint is every science, every craft, every industry and every trade a profession; the special knowledge and skill required in each profession is called its discipline, and the language used within the profession is called its nomenclature. The better the nomenclature, the better is the discipline, and reversedly. The nomenclature is created and widened by the entire profession at large, and especially by its teachers, writers or, what are called, the experts. Science differs in so far from the other professions as her territory is neutral; her progress is dependent on perpetual intercourse with all nations and hence her nomenclature is more or less international, universal. To secure this universality it became usual to employ the ancient languages, Greek and Latin in one part, or the whole of the word. But these half ancient words represented not the only name for the thing or idea which they included; on the contrary all nations supplied from their own languages native words to match the half-ancient term. Sometimes such a half-ancient term has ten or five or two, mostly of course only one native "pendant," but sometimes it is even without it. This is a deficiency which finds its correction gradually, by the instinctive predilection of the members of the profession for their mother language. In the reversed case when the native word has been supplied, but no international counterpart, the damage is not so great as either the native word possesses so many virtues that it is adopted *tel quel* by the other nations, i. e. it is raised to the rank of an international term, or the native word is so simple that every language can easily translate it verbally.

As a rule, professional terms appear queer to the outsider, and, should he even master the language to which they belong, or should they even be of his own language he can not understand them without the aid of an adept. For instance, a German citizen cannot understand the language of a German hunter, nor can an American capitalist read a book written by an American engineer on the details of the improvements of textile machinery, nor would the mayor of Paris especially enjoy the French translation of your anatomy of the teeth, however admirable it is. There is a popular feeling that nobody likes to have a layman look into his business, and it was therefore not for this class that the keys of professional language were published and that each profession received its own lexicon. These lexica, which are indeed the keys of nomenclature, were edited for the benefit of the members, and especially the scholars of each profession, for whom they are an indispensable mentor. In fact it would be rather tolerable to burn down all professional schools and colleges than to destroy their lexicography.

What were the rules upon which these technical terms were manufactured, were they the work of chance or of reason? The bulk of the professional names are, no doubt, the result of strict adherence to the rule that the word shall indicate as terse and accurate as possible, inherent properties, characteristic of the object or condition to be described. This does not explain the origin of all words but of the larger part at least, and it is not desirable to investigate this etymological question here exhaustively at the expense of our object proper.

The steady companion of nomenclature is notation; all professions which have the one, have also the other. While nomenclature, as we have seen, may be half or entirely national; notation is always entirely international. For nearly every instance is notation only subordinate in rank; music is the only profession where this ratio is reversed (according to the international or rather spherical character of her products) and here does notation overbalance nomenclature. The language and writings of music are really merely a cobweb of signs (called notes) and marks which have no meaning in itself but have to be endowed with meaning by special instruction. It deserves attention that even music which, by virtue of her undeniable universal character, had hitherto confined her professional terms (such as *risoluto*, *con espressione*, etc.,) exclusively to Italian words has to give way, now gradually to the pressure of nationalism and that these words are replaced by vernacular ones, because it has no sense to bother millions of disciples who never came across Italian words with the foreign words which can just as clearly be expressed in their own language.

Notation, as we saw, works therefore exclusively—or ought to work—with geometrical signs, figures and letters, not only because they secure a truly international character, but also because this is the only way to achieve the aim of shortness. Notation is a system of, so to say, primitive diagrams and concerted signs, while nomenclature works with words, *i. e.* with words of real meaning, and is therefore not of that deaf-mute appearance which characterises notation.

Having discussed so far the object and compass of nomenclature in general, we can now devote a few thoughts to the nomenclature of medicine, which had to play intermediately the part of a foster mother for dentistry. The code of medicine comprises from fifteen to fifty thousand words, of which many are universal because they are compiled from a few hundred ancient names which, supplied in a varying manner with about sixty prefixes and half as many suffixes, give an unsurveyable range of denominations. It is evident that these about one hundred pre. and suffixes are the real base of the entire system of medical nomenclature, and this lifts up the secret of its success. These prefixes (such as *mal* for *mis* or *anti* for *against*) and these suffixes (like *itis* for *inflammation*) can be found in every medical dictionary, and their application will most probably remain obligatory for many centuries to come. The principle of constructing a new name is likewise very simple; in anatomy the name shall mainly involve a morphological and topographical definition, *i. e.* it shall tell the place and shape of the object; in pathology it shall tell the organ and its condition and so in every science the name shall answer the main interest of that branch. There is nothing difficult nor doubtful about that.

After these introductory contemplations, we are prepared to consider the best method for the establishment of a useful plan of dental nomenclature. Dentistry has a rich store of technical terms already, hence what is it that has to be done? This is the very focus of our problem and the following propositions shall converge to it. Will you permit me, dear sir, to state first the ideas with which I desire to familiarize you:

SEC. 1. It is indispensable to have a dental dictionary.

SEC. 2. It is unavailing to favor so-called universal, mostly old-fashioned words in Greek and Latin.

SEC. 3. It is unadvisable to annul synonymous, seemingly redundant words.

SEC. 4. Nomenclature must be governed by principles only; notation, however, by laws.

SEC. 5. The duty of the committee is only to stimulate, not to decree.

SEC. 6. A competent scheme for nomenclature can be proposed.

SEC. 7. The scheme of notation requires greater care as it is compulsory.

SECTION 1. Although it has already been shown that every language and every profession has and needs a special dictionary, and that hence dentistry is the only science which has no own lexicon for her professional terms; it shall yet be indicated here by several examples that the words which cannot be understood without the aid of a dictionary are legion; thus, *Aussaigern* is a mechanical, and *Fingerbeere* an anatomical German word which resemble a book with seven seals; in French we might ask what means: *le bois du Bresil*, *le caustique de Vienne*, *le liqueur de Van Swieten*, *le trou sous-mentonnier* (mental foramen?) *le nevraxe*, (spinal cord?) *le bourgeon maxillaire*, (maxilliary process?), *la merographic*, *le pied de biche* (Geissfuss), *la laminaire* (a kind of leaves, but what kind?) Or who shall be able to smell that *whiting* is chalk made wet, that *mycotic* means fungous, that *godive* is an impression material, that *cross-pins* are arranged in the occluding line, and *straight-pins* in the vertical direction, that *caliper-tweezers* are delicate tweezers opened by a screw and that *band-amalgam-crown* means a permanent band filled out by an amalgam filling, etc. All this and all other words are of course self-evident for him who knows them, but what under the sun is not self-evident? Is it not self-evident that the inhabitants of the earth have never seen the other half (backside) of the moon or that her light is 618,000 times weaker for us than that of the sun? Everything is self-evident that we know, *i. e.*, what we have learned, and therefore it ought to be considered that the meaning of every word in the dental language is a secret for the new beginner or for the foreigner and that nobody, however well-informed he may be, is omniscient. Everything is easy for the "canner" and nothing is absolutely difficult in itself. The words shown above (like nearly all dental terms), can even not be found in encyclopedias, is it wise to make every one of the three thousand students who enter the profession every year waste his valuable time with their deciphering? The golden opportunity of three years' study should be treated like gold. This will only be realizable as soon as every word of the professional language can be found in the dental dictionary. Besides, the necessity will cease then for having even a single universal word, as only the order, classification and completeness of the work need to be uniform in all countries, whereas it is not at all necessary that any word need to be similar or literally the same in all or even only in two languages. In this way many cumbersome bars in the construction of professional words fall away as these can be unrestrainedly adapted to any mother language without taking care for a similarity of nouns or inflections, or syllables or apprehensions. When the Germans like to call the "filling of teeth" *Plombiren*, let them do so, it is just as logical, as beautiful and clear. The manifoldness in expression is hereby preserved, and the invincible difficulty to agree on the details of "censuring" is dismissed. Likewise the addition of new words is materially facilitated in this manner. The dictionary and its annual appendices will furnish the instruction so urgently needed, and no student need to despair then any more, as for every word, new to him, he can find the key in the dictionary. The modern text-books plunge into the midsts of professional expressions and leave it to the reader to guess what may be meant; science is, however, not the field for guesswork; and hence, every professional man must take a special course in the inexhaustible labyrinth of nomenclature in form of a lifetime's reference to the faithful *vademecum* or *cicerone* of a dictionary. The singular scandal of a profession without a dictionary cannot be endured any longer.

SEC. 2. Much has been said already in this discourse on the righteousness of preserving every modern language as pure and unmixed (unbastarded) as possible, and it is evident that it can only increase the popularity of a science when she is honestly national in her nomenclature. This wisdom has been comprehended in the United States, for here there is really no difference between the popular and the scientific language and nearly all words have been assimilated or translated to vernacular names. This accounts for it that the American text-books are the easiest to understand and find the greatest circulation. The father of cultural history, Henry Thomas Buckle, makes the following instructive remark in this behalf: "The highest intellects of Germany use a learned language; they turn their mother-tongue into a dialect, eloquent indeed, and very powerful, but so difficult, so subtle, and so full of complicated inversions that to their own lower classes it is utterly incomprehensible. Their nomenclature has increased the distance which separates the great German thinkers from that dull and plodding class, which, though it lies immediately beneath them, still remains uninfluenced by their knowledge and uncheered by the glow and fire of their genius. In America we see a civilization precisely the reverse of this; we see a country, of which it has been truly said, that in no other are there so few men of great ignorance. The stock of American knowledge is spread through all classes, the stock of German knowledge, though immense, is confined to one class. Civilization is regulated by the accummulation and diffusion of knowledge." This has been written fifty years ago, but it leaves no doubt that if the interchange of ideas is in any relation to the prosperity of a nation that that system of nomenclature is the least advantageous which creates the greatest interval between the highest minds and the lowest minds. Can any stronger verdict against a nomenclature, saturated with Greek and Latin names, be advanced, can there be any doubt that the first party destined to profit by the acquisitions of science is one's own nation and that hence each profession must make her nomenclature as palatable to the common understanding of her disciples as possible by using the smallest amount of extraneous names that can be afforded, and can there be any doubt that for the intercourse with other nations alien words are not a bit better than native words registered in a dictionary?

As long as science converses in any of the vernacular languages, so long is it of no value to favor the use of alien, ancient or half ancient words because they interfere only with the purity of the vernacular languages whose harmony they disfigure without aiding to any extent in the establishment of a universal interpretation. Synonymous vernacular words have therefore not only the same value as ancient words but they deserve even to be preferred. Let us imagine an American dentist would read a German text-book and would find there the word *septum nasale* (representing a would-be universal term.) Either he is conversant with the German language, then he will just as well understand the word *Nasenwand;* and should he even not know which anatomical part is meant, then he can have recourse to the German dental dictionary which will tell him all about that; or he is not conversant with the German language, then the entire text-book will be of no good to him. That is one example to show that every year thousands of German practitioners and students would have to stumble over innumerable obsolete unnational words which would only soil their language without aiding in the least any foreign reader. Martin Luther was a great pioneer in the reform of his language to the effect of extirpating unnecessary foreign terms. Or is it not decidedly an exhibition of bad taste to write into a German text-book: *Icterus* instead of *Gelbsucht*, *Prurigo* instead of *Krätze*, or *Lichen* instead of *Flechte?* Has it any sense to confound thousands of German readers in order to assist (if it would!) two or five dozens of foreign readers, or is it not better that the latter help themselves with the dental dictionary or have the kindness to engage a hired translator for themselves. When you say, "The cases where Latin roots are not available comprise but few words." I should like to reply, "And the case that a vernacular word would not be available for a Latin or Greek metaphor does not exist at all." The time where the amount of learning was taxed by the use of strangulating foreign, mysterious words has passed.

It must not be forgotten that it was the desire to keep the general public in an ignorant state and in a respectful distance which, to a great deal, stimulated the physicians to use ancient expressions intended to surround their persons with a special nimbus. This interest has passed away, and in contrary the Austrian government has for instance ordered that all prescriptions have to be written clearly and in full words so that everybody may understand them.

While I advocate a nomenclature as vernacular as compatible with highest exactness, I wish yet to destroy every doubt that I hold poor unskillful preparations made of modern words in abhorrence: A name for instance like *Kiefergerüst* (for maxilla) is positively no improvement, as the jaw is neither a scaffold nor a stage. A little better is perhaps the word *Bandscheibe* (for interarticular fibro-cartilage), at least preferable to *Menisken* (menisci). And clearer still is such a word like *Wurzelloch* (for apical foramen), which has a weak competitor in the word *Wurzelspitzenœffnung*, which is really long enough for a whale's mouth. A word (used by many Germans) on which I could pour boiling acid is the word *Gummiplatte* (for rubber dam), because the word *Platte* means a hard plate (like that of an artificial set) but not a piece of cloth; it should, therefore, be exchanged by *Gummidamm* (a verbal translation), or by *Zahnschürze*, *Gummischürze*, or *Mundschürze*, which words mean an apron, what the "dam" really is, for hitherto the word dam was reserved for use in the romantic valleys of the Alps and along such majestic rivers as the Mississippi; but Dr. Barnum thought perhaps the dentist is an engineer who has to defeat the elements of nature, and so he erected the "dam."

The French use also the term *la digue en caoutchouc*. At all events in America where swearing is regarded as the greatest crime on God's green earth, a dentist ought to be careful not to ask a patient : Would you like to be rubber dammed for this operation ?

But this is only to show that even universal or seemingly harmless words may have a really objectionable flavor and yet do good service, like a tooth with a bad contact point. But Greek or Latin will not bring order into this system, nor is there a man to prevent the French from using *la moufle* as a *flask;* he could say, "Look at the Germans, they take a *cüvette*, and don't say *Kochbüchse.* Why do you French not also use the French word "*cuvette ?*" And they could answer him, "Why not ? For the same reason why we prefer *couisson* (boiling) for *vulcanization.*" Or an American dentist could say to a French, "Take *le forceps* for this extraction," and he would answer, "My dear colleague, I am no accoucheur, I use *le davier !*"

These examples prove that no word can be displaced by mere reason, because the habit is more powerful, and dentistry has no right to interfere with these habits, but she has the duty to register them in her dictionary and that will be of the greatest good for the largest number.

Conceding that it is more difficult to memorize a strange word than a native one, it will appear better to write instead of *labium leporinum*, in English, *hare lip*, in French *bec de lièvre*, and in German *Hasenscharte*, and it will be noticed that in each case the expression is as concise as can ever be desired, though the word "lip" is not even literally translated in the various languages. But for the sake of argument let us even imagine the labial cleft would be called "*moon-chasm*" (should any nation find that drastic comparison more in line of her taste or wickedness), would that interfere with a universal interpretation as soon as the word is duly registered in the dental dictionary of that nation? Positively not, for the word would be just as good (always providing it were in general use in one country) and clear as a real photography, and the Latin name could go home to his forefathers. In this respect it should be remembered that all nations speak of the *rising* of the sun, though the sun stands still like a door nail.

Shameful is it when a German author writes *dehiscirt* instead of *gespalten* (split), or when he writes *Pistill* instead *Stoessel*, or *Reiber* or *Moerserkeule* (pestle), but as long as the Germans have no better word for *Kautschuk* which the Americans have energetically replaced by *rubber*, and for which the French use the universal name *vulcanite*, they need not to commit suicide, for as said already several times, there is no need for universal terms, but only for universal principles, and with the one rule, "Register every word in the dental dictionary," the necessity of repeating and copying and monkeying is gone once and forever. The auctroyation of foreign words, be they Greek or Japanese, or whatever else, is only liable to raise hate and indignation in a nation, but not love and esteem. The man who is not satisfied with a word like *Zahnstein* for *tartar*, or with *Speichelstein* for *Sialolith*, although he can find it in the dental dictionary, may go to the north pole with his ancient predilection but not to a dental congress.

SEC. 3. It is nearly unnecessary to emphasize particularly that the hope of those who expected a magnificent chase on redundant words from nomenclature will be forlorn because the noble lords of ancient Greek or Latin origin who were intended to displace the modest citizens of modern descent cannot receive the exclusive dominion of omnipotent prerogatives. "The hall of science is the temple of democracy," and when the scheme proposed in the first two paragraphs was democratic, it might perhaps be infered that its base is in accordance with the laws of science. The present paragraph can only reinforce the arguments used heretofore. From the standpoint of scientific equality such a thing as "redundant" does not exist, for all words are equal, and whenever some may possess higher virtues than others, this does not expropriate the latter from the domain of nomenclature. Every word must be recognized, *i. e.*, registered in the rubrics of the dental dictionary as soon as it has once been used to any extent.

There is only one objection which could make a word really impossible and that is, that the word be indecent. But within a profession an indecent word will never come up. Dr. Krafft-Ebing, in his work on *Psychopathia Sexualis*, says in the preface: "In order that unqualified persons should not become readers, the author saw himself compelled to choose a title understood only by the learned, and also, where possible, to express himself in *terminis technicis*. It seemed necessary also to give certain particularly revolting portions in Latin rather than in German."

This is striking as an example which shows that there are authors who think it necessary to obscure the context artificially in order to confine the circulation of a book to professional circles. Shall dentistry adopt such a method for an essay in which it would f. i. be discussed how the teeth (which are the mirror of the general health) can disclose a propensity for anomalies of the sexual instinct? Shall dentistry prescribe or recommend to make the reading of such a class of psychiatric essays difficult?

It seems a misapplied delicacy to do that, as any kind of scientific literature can use the vernacular terms which are just as decent and pure as Latin descriptions ever can be, and it is childish to expect that anything really offending to the ethical and æsthetic feeling could become sanctified by obsolete expressions. The highest degree of morality cannot be manifested otherwise than by the spirit of the author whose true intention will become unmasked, may he use Latin or vernacular names.

To suppress any truth is against the welfare of society, and hence no shadowy mysterious language should be made the instrument of such suppression. Even the policy, to sell a work only by subscription to members of the profession is unjust. Sexual questions need not such a nomenclature as Dr. Krafft-Ebing has preferred in order to prevent mischief, for there is hardly a scientific book in the entire world which may be found in the hands of so many laymen as just the one referred to (Psychopathia Sexualis), which proves that the latin nomenclature did not restrict the greed of the readers, nor can it improve their morality, as the latter is influenced by the spirit and intention of the author and not by the difficulty of his language. To those readers however who are poisoned even by the most selected and pure discussion of sexual life also a nomenclature of crystalized Sanskrit would bring no help.

The use of vernacular terms is therefore preferable even for the discussion of sexual psychology.

From some standpoint or other every word will recommend itself, as without inert rights it could not have become more or less popular, and nobody will risk his good reputation by earnestly proposing an altogether crazy word.

Moreover everybody waits before he uses a new word if his word finds approval or if his proposal vanishes into thin air. At least has there never been an instance that a name was entirely improper; on the other hand is even the best name not beyond criticism. Therefore, it has no sense to kill a name or to rule it out. Such a policy would be an attack on the liberty of thought and speech, which should not be allowed in scientific circles. Who shall make the ruling? The profession at large? They will never agree. The majority? Then the minority is gagged. Or the committee? Then the committee would usurp the power of a dictator, and it might justly be asked: "Who shall watch the watchers?" Does it any harm when there are several words for the same thing? Certainly not; on the contrary it is entertaining and refreshing; it permits of variation and gives an agreeable flavor to the essays. Why shall we not call the same surface mastical, coronal, tritural, morsal, or occlusal? Why not? There is no profit in being more pious than the Pope. Any autocracy in this line would only cause bad feeling among the adherents of the suppressed words.

A nation has the right to condemn the use of dispensable foreign words and to say, we want to be national; we want to have a pure and truly national language; we abominate every son of our State who is not proud of his language or who dares to pollute it; a nation has this right not only legally, but because it is in the line of nature and leads to highest perfectness. And a profession has likewise the right to discard words which are confusing because they have no definite exclusive meaning; but words which are just as clear as clear can be and which are in every way equal to any other word should not be abandoned. The name *cuspid* needs not to live at the expense of *canine* or *eye-tooth*.

It may recommend a word that it is already long in use, and that the profession has become accustomed to it, like the word *artery*, but that is no reason to declare this as *the* word, *i. e.* as the only word which should be used, because any day may bring us a better word, a word whose etymology is more in line with the essential nature of the object, for an artery (which means air-container) contains no air, hence there is plenty of room for a better word. The circumstance that the word artery is in general use since centuries need not to detain any man from proposing a better word which combines more points recommending it; for the one point "long in use" is considerably counterbalanced by the point "full of nonsense," and were that even not the case it would not entitle the profession to erect a bar around the word and to declare the word "out of sight." The generations which will come after us are not yet accustomed to the word "artery," and should any of them come across it in an old dusty book, they will find its definition in the dictionary, because the dictionary has no power to exclude words which have got out of use.

In short the law of evolution will manifest itself in nomenclature just the same as anywhere else and will formulate itself in about the following manner: "Every word not conforming to all requirements of perfectness (hence including objections) may experience the fate of being replaced by a better word in the favor of the profession." No word is exempted from this rule, and be it even attired in the royal purple of Greek and Latin. But the dental dictionary has not only to contain these words which enjoy this favor but also those which lost the paradise. The common sense of the profession and her leaders will decide which words are the fittest for standard, but it lays in the nature of things that this standard will change and vary more or less and that in many instances two or more names (belonging to the same object) will keep each other equally in balance.

If there is such a thing as an ideal word, which properties should it exhibit? What are the laws of nomenclative perfectness especially with regard to dentistry?

The first and implicit exigence is that no word should be amphibological, every thing should have its own name, and no two things should own together one name. You state that very concisely by saying: "Call a particular thing by a particular name; don't call different things by the same name." Prof. Paolo Mantegazza criticised, for instance, fifteen years ago, that all nations call the entirely different emotions of sympathy for a mother, a son, a friend, or a wife by the same name of "*love*," though these are feelings just as different as the motions of walking, driving, swimming, flying. If we would call them all by "*swinging*" only, this would be just as inexact as to call the different forms of friendship "Love." And yet the defect has not yet been repaired because the sagacity which would be requisite herefor is a divine inspiration and cannot be deposited "to order," whenever nomenclature is in urgent want of it. Words of doubtful meaning should be corrected to a strictly confined meaning or be dropped.

New things should receive entirely new names, and obsolete names should not be usurped for innovations. It is, however, not "a valid reason for the change of a name when the same word is employed in a different sense or for a different object by a profession not related with dentistry (for instance, botany)." The word *orbit*, for instance, is used by ophthalmologists and astronomers for different objects.

The new word should be in line with the nomenclative system of the science and group to which it belongs. For instance, in chemistry the compounds are made recognizable by the terminations of their names, and this rule cannot be slighted. A short time ago a new compound for gum-freezing was invented in France, and the substance was called *le coryl* according to its appertaining to the methyl group. The new apparatus for pulverizing this volatile fluid was very practically called *le coryleur*.

These are two very striking examples to show how the names of similar subjects belonging to one group or to each other should best be classified. Everybody is unconsciously governed by the prevailing custom that the name should answer either to the old rules for ancient and half ancient words, and that the appropriate pre or suffix should eventually be employed, or that it should answer to the modern rules of the specialty to which it belongs, or to the general rules referring to modern languages which were discussed in the introduction. Words adapting themselves to the traditional plan of the group of which they treat will meet more understanding than an apostate.

When closely similar notions receive similar names, this will sound more logical. Especially when they are used in one combination, things of familiar contents or sense should be called by names of familiar origin, but that means not, that our professional groups should introduce the poetical play of alliteration and assonance, etc., into our terms.

Scientific literature is governed not only by the laws of clearness and accuracy, but also by those of classicism. When the rose adorns herself, adorns she too the garden. These are pretty extensive restrictions for the formative prospectus of a name, and therefore the plan of that penurious astronomer would not answer our purposes, who, some years ago, advertised that he was ready to baptize the planet which he had just discovered with the name of that person who would give him a certain sum of money.

Anybody able to make discoveries in one branch of science will also be able to supply proper names for them, as a discovery requires such previous researches through the literature and its forms of nomenclature that the discoverer will be thoroughly acquainted with the rules of custom to which he has to conform. Hence dentistry can enter any field relating to her, and supply the missing or improve the existing names. We *have*, therefore, "a right to go beyond the teeth and their membranes," just as medicine may enrich dental nomenclature if she likes to.

It is self-evident that in coining a new word the grammatical rules of the language to which this word belongs should not be disregarded. Thus in the English language the ending *ism* indicates a constitutional condition, *sion* a tendency, and *sity* a state, and such endings cannot be mixed up. When, therefore, Dr. A. C. Hewitt proposes the name *obtundure* for the state of being obtunded, he uses an ending (*ure*) which indicates an action and not a state. He therefore ought to call it *obtunsion*, but this word is needless as the English language possesses already the word *obtusion* or *obtuseness* herefor.

As we saw, the name shall not only have the prescribed finale and prældium, but it shall also express the correct thought. It is a weak point when the name is incongruent with the nature of the object. To be exactly translatable is a marked advantage for a word, for only onomatopeical words can claim to be stolen out of nature's mirror, and hence universal by birth. The universality of a word should be facilitated by its verbal translation, *i. e.*, metonomasy should be favored wherever practicable.

As different aspects require a different name for the same thing, so it is that one thing may possess two or more names, *i. e.*, it may be polyonymous. This is an advantage for every object, but no disadvantage. Those fond of selected speech should try to furnish every professional word with an ancient metaphor, so that this may serve as Sunday dress. The work dress (*i. e.*, a popular name) is, however, mostly more important, and where it is missing it should be created. Thus it were desirable to institute a popular name for *guttapercha filling*, as the latter is too mysterious for the patients, to say nothing that it is not exact, as this filling is no pure guttapercha, but is incorporated with cement. It would, however, be absurd to attempt to impoverish nomenclature by conceding the exclusive rights of primogeniture to the antiquated Greek and Latin words, as what they seem more elegant, they are more void of common intelligibility, and it is always better to avoid terms which are unfamiliar ta the majority of the readers.

Multinominality produces no chaos or confusion, but saves science from insolvency and fertilizes the world. The powers of man are unlimited, and so must be the words which he needs for developing these powers.

Though brevity is in itself an advantage, neither the formation of polysyllabic words nor of compound words requires any restriction.

Every name may be changed when the change suggests itself by the advantages. Nomenclature must keep pace with the wants of the age. To be new in practice is no objection for a good word. The best word can be outwitted by a better one. The ancient word is not throughout the clearest, nor are any of the modern words equally clear in the various languages. Only the remarks exchanged between Adam and Eve were of a paradisical quality, and those who receive their instructions direct from heaven ought to be requested to publish the maxims of nomenclature of that time.

That these investigations have not been luxurious or superfluous is proven by your own remarks: "The dental nomenclature of general and comparative anatomy is insufficient. Dental irregularities should have their own nomenclature. Prosthetic dentistry, and crown and bridge work also. For operative dentistry the nomenclature is far from complete."

These are your own accusations, and it will perhaps be admissible to strengthen them by the utterances of other authorities which appeared quite recently.

For instance Electrician CARTY said: "At present there is no such scientific nomenclature in electro-therapeutics as there is in the use of drugs."

Dr. ARNIM ROTHMAN gives a new nomenclature to the various forms of pulpitis according to the histological alterations encountering the pulp. He classifies this disease into ten kinds (from *superficial acute septic pulpitis* up to *total gangrene of the pulp.*)

Dr. PAOLO CARRERAS: The moment has come where we should distinguish between the *dental germ* (le germe dentaire) and the *dental pulp* (la pulpe dentaire), which latter is the *dentinal papilla* (la papilla génératrice de l'ivoire). For the pulp constitutes originally three elements: Dentinal papilla, enamel organ and enveloping follicle, and before the formation of the dentine we should speak only of the *dental germ* and not of the pulp.

The consolidation of the entire pulp is no calcification, and even less an ossification, but a transformation into dentinal substance (substance éburnée), which ought to be called (éburnification) *dentinification* of the dental pulp.

The little tumor commonly called *polype de la pulpe*, ought to be named *granulome.*

Dr. SCHLENKER divides the solid new formation of the dental pulp into *emailoides*, *email-dentinoides*, *dentinoides*, *osteoides*, *dentino-osteoides* and *calculoides.*

Dr. MARCEL LERMOYEZ means that there is not more than one single stomatitis, the *septic stomatitis* (though the text-books state nine kinds).

Dr. M. NELATON: The term *angine de Ludwig* does not correspond to any well-defined disease, and deserves not to be conserved any longer.

Dr. M. DELORME: I am certain that not all infrahyoid phlegmons are identical, and hence the name *angine de Ludwig* ought to be discarded.

Dr. POTTEIR: The existence of the *incisive bone* (l'os incisif) in man meets no doubt any more among comparative anatomists.

Dr. H. H SCHUHMANN: It seems as though it would be best to do away with the misleading term *semi-malignant* as the degree of malignity is of entirely secondary importance. Tumors are either *malignant* or *nonmalignant*.

Dr. LOUIS OTTOFY: The oral mucous membrane forms several folds; the frænum of the upper and lower lip and that of the tongue, and the *inferior and superior buccinator frænum*, the latter corresponding to the location of the second bicuspid tooth.

DR. THOMAS L. GILMER: *Ulitis* is or ought to be a general term, while *gingivitis* designates inflammation of that part of the gum which rests next to the teeth, known as the free margins.

All these and thousands of other valuable differentiations are really "for the cat" when they are not registered in the Dental Dictionary or its yearly appendices, for in the vast sea of periodical literature they must disappear; nor do they find entrance in the colleges—if not perchance.

It has been shown in this paragraph that those words which have to be annulled are not the synonymous but the invalid words, *i. e.* those which become nil by a newer discovery or a closer control. These invalid words have, however, not to be omitted in the dictionary but, just the contrary, they must be carefully registered, so that they are really nailed toward the wall. Of course a symbol (for instance, a death's head) or an appropriate remark has to accompany them to warn the reader not to use them.

SEC. 4. All foregoing propositions gravitated to the effect that nomenclature is no field for the paraphernalic chimeras of bossing and prescribing, or restricting and condemning, but that common sense is the only rule employed in any science for the selection of a name. Too much government is nowhere of benefit, but in nomenclature the maxims to be generally adopted, leave so much elbow-room for the selection of a name out of the dictionary or for the creation of new names that really nobody will have to complain of oppression or tyranny.

The supreme law will, of course, be as you style it: "The plan of the nomenclature must be the same in all the several languages," for the *names* may be different in the different modern languages but the *principle* must be uniform. Nomenclature as it stands now can be accepted in full, except the invalid words whose list grows every day larger by the persistent efforts of the writers and teachers who produce better words in their place; but the Dictionary, which is the most important work from which to start must comprise them too. After its appearance, innumerable communications from the entire profession at large, will be sent to the committee to expose the errors which the work will contain and to supply the deficiencies which will naturally be unavoidable. Furthermore, as soon as the chance to complete the professional language will be open, all specialists will propose names for the objects, etc., which are without a name yet. For instance, the various surfaces of an artificial denture have no concise names, etc., etc.

To say, that nomenclature must, first of all, be regular in form (within its various groups) would tend to lay too much stress upon the formal side of the professional language, as its completeness, exactness, clearness and correctness, is indeed more important; the inner qualities concern us more than the outer. That there will be not the slightest difficulty for international intercourse of dentists as soon as the dictionary will be at hand, is beyond every doubt. The only question is hence, how can the description of the objects with which dentistry is dealing, best be accomplished? How can the words be made so clear that they give the very picture of what the writer has in mind?

Concluding from the general satisfaction with the progressiveness and the educational result of the dental literature, it may be declared that the professional language must have already achieved a high degree of perfectness (otherwise the success could not have been reached), a degree so high indeed, that for the present state of knowledge, hardly a fuller treasure of verbs for its description could be desired. Only a few flaws are apparent; whereas the main improvement will have to come from a qualitative condensation of the material, from a simplification of those expressions where too many words are needed for one point, so that with less circumdescription the speech will become shorter in length and superior in clearness. This indicates that the technical nomenclature needs rather abridging and crystallizing by more compact and concrete words, and that this will go hand in hand with the creation of a notation. All new acquisitions in knowledge will, of course, be accompanied by nomenclative improvements, as inquiries which wrest new secrets and new truths from nature, will evidently always require some reform and extension of speech. A reorganization of the dental nomenclature is hence not needed (at least not beyond the limit of a very trifle) for the present system *is good.* That its amplification (whose incessant necessity lies in the very nature of all human enterprise) may be likewise good, and in the best possible harmony with the foundation—this will be controlled by all who are interested in nomenclature.

A man of the latter kind is the Prussian minister of public works, who recently sent an ordinance to his railroad authorities, wherein he commanded that henceforth uniform German designations shall have to be used in all official concerns. He gave with the list of prohibited words a specification of the new official terms, for instance *Abteil* instead of *Coupé*, etc. But his method of authoritatively commanding, needs and should not be imitated by dentistry (however much the better words may deserve preference), for dentistry is not an indolent and ignorant corporation like the lower railroad organs, and hence dentists have sense enough (without prescription) to select the best and most appropriate words and anybody can publish his opinion in the dental periodicals should he be convinced that the profession is on the wrong way.

Different is the state of things in the domain of notation. Here it would not do, to let every one ad libitum select or construct what he thinks best, but in notation implicit universal laws should strictly be observed. Without that the entire system would be for nothing. Notation requires really a military minuteness as a single point can change the sense and convert it into its contrary. To propose that every nation may procede as she pleases would directly undermine the object and nature of notation. Notation, being a language without sounds and words, being a canvas of figures, letters, signs and symbols only, notation is destinated for all nations and for the entire universe. To make it national would defeat its object and would artificially infect it with decay.

One circumstance, however, facilitates the seemingly hard and cruel condition, in a marvelous manner and turns the whole task into real child's play, and that is the fact, that notation does not yet exist at all in dentistry. Notation has to be created from its very cradle, for not even the alphabet of this sign-language has been introduced anywhere, and this is of course an enormous advantage. It is true, discussions have taken place several times before already, and here and there single practitioners make even private use of some form of notation, but the profession at large has not yet used it, nor even studied it in any country, and hence the good seed will find an inexhausted soil.

To permit, under such circumstances, any nation to deviate (even in the least bit) from the plan and the details which will generally be accepted would be an unpardonable mistake and an outrage, too. Notation destroys all individuality and nationality, destroys taste and predilection, for here only one way will be granted. This way will be the straight line, as the imperative demand "cut it short" permits of no other chance but the shortest distance between the two points. Fancy and arbitrariness may take another train, if they want, but on the roads of notation no place will be granted them.

Sec. 5. Returning from the martial law of notation to the idyl of nomenclature I wish to analyze for a moment the range of the committee's office. You will have noticed, dear sir, that I am pretty frank with my opinion, because I consider love of truth and fearlessness inseparable from the duties of the sincere inquirer. That the appreciation of the merits of a scientific opponent never leaves me, you may rest assured, but I should consider it a crime, would I not honestly advocate what I firmly believe is right. So you will please pardon me, dear sir, when I am never loth to criticism, but in your own esteemed circular you say repeatedly: State your objections. It is therefore only upon your own demand, when I declare that I consider it the greatest wrong, that you have not communicated your indeed valuable circular to the entire profession through the channels of the journals so as to unfetter the fullest discussion of so important a theme, (that you have only sent it to the committee.) How can a committee of sixteen men, however great their ability may be, however much confidence they may deserve, be expected to achieve the same satisfactory plan which could result from the combined efforts of the entire profession? In my opinion, it must discourage so few coöperators to know the total burden of responsibility on their own shoulders exclusively. Was it the impression that the profession would like to get a kind of Christmas surprise which induced you to keep your work secret? But I think always that publicity is the greatest aid for a perfect success in any social enterprise. As soon as a man steals a golden watch anywhere in Europe, the accident is at once published in all papers. Why? Because the police know that through the coöperative help of the entire public the thief will be discovered within half a day. And so it is, and even in such parts of the old country where the most disgraceful and enslaving treatment of the press is in vogue, and where every free word is censured and suppressed, and yet the publication of the crimes enjoys the most powerful support by the government. This is an impressive lesson on the power of the unrestricted communication of thoughts which require the assistance of all.

As to the office of the members of the committee, I think they have been elected so as to give to the profession a medium to concentrate all communications in one effective body. Their active part will, however, be to educate the profession in the selection of words, to instruct her in the principles which have to be guarded and to stimulate all, to contribute their best ideas for the improvement of the professional speech. The committee will have the power to distribute the work of "supplying missing terms" among the best specialists in each branch and to inform the profession of the status operandi during the progression of the dictionary.

But as to the erecting of bars and the prescribing of rules, the committee should keep away from that as much as possible and leave it for the profession to decide what is best. Even in notation where strict and binding laws must be emanated, the profession should receive not more than an advice which laws deserve the most and highest recommendation. Each county should elect a committee which manages the arrangement of the dictionary and other nomenclature work and the various national committees could again nominate international delegates, who prepare propositions for the world's congress. It is probable that the American committee would have to take the lead in all these conferences.

SEC. 6. The scheme which I should venture to put forth would be based on the principles evolved at length. They are:

1. A complete dental dictionary has to be established, forming the official archives of all professional words.

a. The dictionary will perhaps be best when composed on the plan of the "American System of Dentistry," *i. e.* that each branch shall be provided with a complete glossary by a competent specialist.

b. Besides that, all essayists could be invited to notify the committee, if they have ever written anything (and where) touching upon notation, etymology and nomenclature. It is to be feared that many suggestions would get lost if the originators themselves would not bring them into fresh memory.

c. The dental depots could be asked to systematize the nomenclature of their instruments, implements, apparatus, etc., and to send a list of them to the committee. It will, however, hardly be necessary to go deep into these details; only the description of original instruments should be complete. If the depots would also furnish illustrations belonging hereto, this were desirable because they could be spared, then, in the text-books. A reform in the names of instruments seems hardly necessary; if necessary, however, then this least important object could be left with the manufacturers for settling.

d. At the close of every year the editors of all periodicals should have to send a report to the committee on the nomenclative changes and increases which have appeared in their journals. From these reports a yearly annex had to be formed for the dictionary.

e. Every nation has to have her own dictionary, in which the vernacular words should be printed in vernacular letters. In Germany for instance it has become the bad habit to print the context of many scientific books in Latin instead of in German types (*Fracture-letters*), although the latter are much better for the reader as they are so characteristical. The motive was no doubt a wrong idea of universality.

f. The words have to appear in their alphabetical order and to each word shall, if possible, be added the etymology and a short definition, or description, or illustration, or reference to books and articles. In case the word has a Greek etymology it will be better to reproduce the Greek words in Latin letters, as the knowledge of Greek letters can hardly be expected from the majority nowadays.

g. If a word is objectionable, or invalid, this should be stated and the reasons why; also, when it is antiquated, or only locally in use; also when its meaning is not in accordance with the nature of the object. For instance *l' or adhésif* is frequently used in France instead of *l'or cohésif.* Also *oxyde de cobalt* is frequently called what in reality is *arsenic métallique pulvérisé.* Or a tooth is called *elongated* though it has not become longer but only *dis-*

placed. Or we speak of *six* and *twelve year molars* though the period of normal eruption for these teeth is the seventh and fourteenth year. Or the French say instead of *lateral incisor*, *la petite incisive*, though in the lower jaw the laterals are larger than the centrals. Or we denominate a disease *Pyorrhea alveolaris*, which the French name better *Pyorrhée interalvéolo dentaire. Sulfuric ether* again is commonly called *ether* only. The Germans have time enough to call *continuous gum work*, *Gebiss mit fortlaufendem Emailzahnfleisch*, though they could explain just as much by saying *Emailgebiss.* In this way thousands of little imperfectnesses could be corrected, errors prevented, and improvements suggested.

h. To each word should be attached the entire list of synonyms which it has. This would not only help many essayists who look for a varying expression, but it would destroy the doubts of the student who otherwise has no chance at all to find out if two words are identical. For instance like *l' ivoire* and *la dentine*; or *la petite molaire*, *le bicuspide* and *la premolaire*; or *la troisieme grosse molaire* and *la dent de sagesse.* The German has for *impression-tray* only the following words: *Abdruckschale*, *Abdruckloeffel*, *Mundloeffel*, *Mundblech.*

i. It should also be said, to which subjects the word is correlative, as this is done in medical dictionaries.

k. To each word should be given its translation in French, English and German. This would be the really international feature of the work, as this would enable every foreigner to convince himself to which word in his own nomenclature the strange term corresponds. An American, reading French, would of course do best to buy the French dictionary, so that when he comes across a word like *saturnin*, he may be able to translate it correctly.

l. The dictionary should, like all periodicals, be printed in octavo. (Some German dental journals are yet behind the times by their unhandy size). This ought to be a law.

2. Missing names should be supplied, if possible. In every case it seems not to be possible, for instance, for the contrary of *thirst* no nation could find a name yet. But, especially in anatomy, it is very disturbing to be obliged to circumscribe a place without name by a long sentence. The *most anterior part of the foramen magnum* for instance, which is even marked by a decided tubercle has no anatomical name; though craniologists called about this space *basion*, yet this does not belong to anatomy, and at any rate

the *tubercle* has no name. Many such deficiencies have been mentioned by the majority of essayists, but they were too bashful to supply the name, which they stated, was needed.

3. That little bit of greater regularity in form which, to my mind, could and should be established by nomenclature, lies within the compass of dental anatomy, in so far, as in general anatomy the shape of cavities, prominences and eminences has or ought to have fixed names. These names should be regulated and then declared universal, and a similar or the same principle should perhaps be accepted in dental anatomy. To make proposals in this direction I think, were not proper for me, as you are an authority in this domain, so highly recognized in the entire world, and you have created such a prominent part of that nomenclature yourself, that you will be best acquainted with the needs and chances of that work.

4. I very heartily agree with you, that all adjectives ending in al are universal, especially when they have a topographical meaning, and we could perhaps express that by saying: The formation of adjectives, out of Latin substantives, by the addition of al or ial, or ical, is unlimited, and such adjectives ought to be favored universally because they are easily understood and have many relatives in French and English. This list is really endless, and it were therefore needless to try their enumeration. When even the Americans do not use (as the French do) a word like *intra-buccal* (for "within the mouth"), or when the Germans abstain from the word *oral*, they could easily become accustomed to it or, at least, will they understand it at first sight in the foreign literature. For the Americans, I do not see why they should not make of their own words like *lobe*, *cusp*, *angle*, *ridge*, *groove*, *pit*, etc., American adjectives like *lobal*, *cuspal*, *anglical*, *ridgical*, *grooval*, *pittal*, etc. They may sound strange, but not for other reasons than that they are new.

5. As soon as the observer states exactly his standpoint from which he looks at an object and does not change that stand in the same article, there can hardly be made a just objection against the use of words like *inner*, *outward*, *forward*, *backward*, *anterior*, *posterior*, *upper and lower*, etc.

6. According to a proposal recently made in general anatomy all private proper names such as *Highmore*, *Bright*, *Hutchinson*, *Havers*, *Howship*, *Nasmyth*, *Tomes*, *Steno*, *Wharton*, *Bartholini*,

Eustachius, etc., should be dropped, and if this would destroy the name itself, another one had to be furnished in its stead. Only for instruments, materials and other merchandise the use of personal names may be conceded. It must, however, not be overlooked that other sciences rather keenly favored the use of private names; for instance, electricity selected such great men as Ampère, Volta, Ohm, etc., for making a neutrum of them.

7. The purification of the language will, however, not find its limit herewith, for all words which leave a doubt as to their exact meaning are not up to the standard. These doubtful words should, however, not be autocratically excommunicated (whereas with personal names this should be done) as they will die their own death as soon as better words will present themselves. Nomenclature cannot refrain too much from imposing restrictions. The doubtful words can also often be made clear by an explanation in the dictionary.

8. There are, however, two other affairs which have to be arranged categorically, with pardon for none. The one is the improvement of spelling. All nations and professions have a spell where they make some slight advancements in the system of spelling, and these changes should be carried out uniformly. The final e in *dentin* is an example. Also your proposal is good "to leave out the *hyphen* from those compound words in which the second word begins with a consonant, while the first ends with a vowel, or the reverse." *Ether* is better than *æther*, and *etiology* preferable for *ætiology*, etc.

9. The other prescription which is by far more urgently needed concerns the context of illustrations. As a rule, there are many points (especially in anatomical illustrations) which shall be explained by a word or two. The lower jaw has, for instance, about twenty such anatomical landmarks whose exact situation shall be made clear by the addition of some context. When this context is directly written upon the illustration, this will have the disadvantage; that it soils the drawing; that words have to be placed in the absurdest positions, and (what is the worst) that several explanations have to be left away for lack of room. It appears, therefore, more practical to make a mark only (preferably a letter) to the noteworthy place, and to take reference to the letter so used. This system leaves the illustration clean and clear. It will, however, be found that these letters are hard to discover

because they are placed in the drawing pell-mell, and sometimes it would require half an hour to find the place which is marked with the stated letter. In this way much valuable time is lost which could benefit the student, if the letters were to be found on first glance. It should, therefore, be made an unchangeable law that

a. All landmarks have to be signed by letters only, and not by words in the midst of the illustration.

b. These letters have to be connected by an arrow or dotted line with the white space surrounding the figure, and should be repeated there and supplied with some eventual short comments of context.

c. The letters of reference have to be arranged in the same order as the figures on a dial, *i. e.* nearest to the median line on the right upper half of the picture, has to begin the letter a, and from here the other letters have to follow exactly alphabetically, so that they appear on the outside of the drawing in the same order as the figures on the dial. After z the letters can continue with a^1 to z^1, a^2 to z^2, etc.

This would once for all make an end to all the time-wasting evils and flaws of the inconsequent habits observed hitherto in the explanation of illustrations.

d. In this regard it seems also desirable to me that in every case where really a numerical (arithmetical) notion shall be expressed the number in question should not be written in letters but in figures, hence, not fifteen-sixteenths, but $\frac{15}{16}$, and not one hundred and forty-five, but 145. There is not one man on earth who would not read and mind figures easier than words, when really quantities or sizes are to be indicated or studied.

e. The anarchy now governing the use of foot-notes (in scientific books) should likewise be abandoned to the effect that each foot-note (no matter if it is an excursional branch of the essay or the simple statement of the title and passage of a book only which is cited in the context) shall be placed at the foot of the page to which it is thought inserted and that it shall not be banished to the end of the work or of the chapter, as such a method would make the reading cumbersome. It meets however no objection to supply a book with a separate list of the authors quoted. Besides that, an alphabetical index and an analyticaltable of contents are desirable appendices for each book. Desirable were also a list of the instruments and materials used in a book.

10. The description of carious cavities falls rather (so far as the condition of the living structures is not concerned) more into the domain of odontometry and will partly be settled by notation. The nomenclative rules for this branch may perhaps be advanced in the following manner:

a. For the limitation of the depth of carious cavities the French system is the best which denominates a cavity as of the

First degree, when it has not transcended the enamel.

Second degree, when it has not transcended the dentine.

Third degree, when it has just exposed the pulp.

Fourth degree, when the pulp is decomposed or mummified.

This system should, however, not be mixed up with the histological classification of caries into the four zones of translucency.

b. In case the division of the crown into thirds should be employed, the following order should regularly be observed. That third should be called the

First, which begins either mesially, or occlusally, or buccally.

Third, which begins either distally or cervically, or lingually.

Second, which lies in the middle of the two.

The three thirds beginning mesially or distally should be called the *approximal thirds.*

Those beginning occlusively or cervically—the *horizontal thirds.*

Those beginning buccally or lingually—the *vertical thirds.*

c. In this regard I should like to be permitted to make a few other propositions which enable the odontometrician to precisely name the districts involved by caries.

c—1. The external point of union of the roots of teeth (with two or more roots), I mean that point which is in the center of the tooth, when the latter is viewed in such a manner that the apical foramina are straight in front of the observer, so that he cannot see the morsal surface—this point I should like to call the *inferior pole* of the tooth. In a lower molar the line between the two roots would be the *polar line* on which the tooth, so to say, rides. In upper molars the polar line separates the lingual from the two buccal roots; the surface between the two latter is the *polar fossa.*

c—2. The center of the morsal surface is the *superior pole.*

c—3. A connection of the two poles would be the *axis.* In single rooted teeth the inferior pole is absent, and the axis is the connection of the center of the morsal surface with the center of the root canal.

c—4. The prolongation, cervically, of the contact point which is always more or less marked by a furrow, could on all teeth be called the *side axis*, *i. e.*, each tooth would have a *mesial* and a *distal side-axis.* This side axis will in upper molars, and in bi- or multi-rooted bicuspids, unite with the inferior polar line, and in all other teeth with the apical foramen.

c—5. Any horizontal line connecting the two side axes should be called the *bar.* As far as the crown is concerned, the bar would always be longest between the contact points. This distance should be named the *normal bar.*

c—6. Any line through the axis which is at right angles to the bar should be called the *contor.*

c.—7. The labial or buccal side could be called the *conto*, the lingual or palatal side the *folio* of the tooth.

c—8. While the circle where the enamel joins the cementum is called the *cervix*, the border where the four sides of the crown join the morsal surface should be called the *morsix.* Both are no real circles but only more or less irregular lines of circumference. In the incisors the morsix (like the entire morsal surface) is more illusory.

c—9. Cervix and morsix have four imaginary corners each, corresponding to the union of the four sides of the tooth with each other. When the analogue corners are connected, we get the corresponding natural borders of the tooth. These borders should be called *bordices*, and the conto-mesial border would be *bordix number one*; conto-distal border would be *bordix number two;* folio-distal border would be *bordix number three;* folio-mesial border would be *bordix number four.*

c—10. The line which corresponds nearest to the center of the conto, morsix-cervically, is called the *conto-axis;* that on the folio side, the *folio-axis.* The contor is the direct connection between these two axes.

c.—11. The distance between morsix and cervix can be divided in three equal portions which could be called the *first, second* and *third* (*coronal*) *region.* The first is the region next to the morsix, etc.

c—12. The two halves formed by the two contors drawn at morsix and cervix could be called the (*coronal*) *hemispheres.*

c—13. The two halves formed by the two bars drawn at the cervix and morsix can be called the (*coronal*) *hemiglobes.*

c—14. The center of the crown is the *focus.*

c—15. The surface where the tooth is amputated for crown work is the *cervical base* of the crown and root respectively. Hence, corono-cervical or radico-cervical base.

c—16. Instead of *mesio-distal* there could be said *barial,* provided a direction is meant which begins mesially and ends distally; the reversed direction (beginning distally and ending mesially) could be indicated by *rebarial.* Instead of *bucco-lingual* the word *contoral* (or *recontoral*) could be used.

I do not lay much stress upon the names proposed here, but perhaps this system of odontometry will meet some approval or lead to better suggestions. Should it, however, find no opposition, it would anyhow not be necessary to introduce it compulsorily but to let it take its own way according to the interests of the profession.

11. It will become a commandment of necessity for all nations to agree upon a uniform measure and weight for everything within the profession, if really universal intercourse is desired. The metric system, which is in use since two decenniums on the continent of Europe will have to be introduced in all countries, using other systems yet, and dentistry ought to use her influence to the effect that this progress may be realized as soon as possible. Also for the gauges a harmonious plan should be accepted.

The question may furthermore be asked if the following standards for comparison of pathological and anatomical objects are adapted to convey an idea exact enough for scientific researches. The other day, while looking over some periodicals, these comparisons attracted my attention, and though I picked up a rich collection of them, I do yet believe that my museum is far from complete. This scale of geometrical proportions seems rather poetical to me than reliable, for however great the zoölogical and botanical erudition of a disciple of dentistry may be, he will yet be in danger to miss some of the following quizzes. What is the size of:

Un oeuf de poule (a hen's egg); un oeuf de pigeon (a dove's egg); un poing (a fist); une plume d'oie (a goose feather); la paume de main (the palm of the hand); une petite mandarine (a small orange); une petite aveline (a small nut); une petite noisette (a small hazelnut); un gros pois (a large pea); une grosse lentille (a large lentil); une noix de galle (a gall-nut); un grain de café (a coffee bean); un grain d'avoine (an oats grain); un grain de chénevis (a hempseed); une graine de raisin (a grapestone); un pois cliche (a chickpea); une pièce de cinquante centimes (a piece of 50 centimes).

I wish not to expose all my ignorance, but that many of these magnitudinal standards are Bohemian villages for me I must confess. The same will probably be true of the majority of readers. Therefore if the profession should admit such a scale, it ought to be set up in a complete table and be supplied with illustrations in the dictionary.

The size of gold fillings could, perhaps, best be illustrated by the number of sheets required, and that of other fillings by stating the number of balls of the smallest kind of shot that could fill the cavity up.

For the description of shapes the geometrical spheres will answer.

12. The right to baptize an object either by a new or by a better name than the old one seems to appertain to any person and not only to the discoverer or inventor. When, f. i., somebody believes it better to call a species "Leptothrix innominata" instead of "buccalis" he has the right to do so and others have the right to follow him, no matter if the advocate of "innominata" is the discover himself or not. And just as well can any other man, though he is neither a discoverer nor even a member of the dental profession come forward with a name which will knock the spots out of "buccalis" as well as "innominata." The profession at large will need no guardian to tell her which name is the best or even to compel her to use a certain name because the committee may be fond of it. The choice will always fall on that word which deserves it, for the essayists, and the teachers, and the editors, and the authors in dentistry are not a queer lot of unprincipled and immature adolescents, but they are scientific men, deeply imbued with the maxims of deontology. This is in itself a guarantee that dental nomenclature will never become a heterogenous pell-mell of accidental contrivances. Every intercourse regulates itself.

Sec. 7. We come now to the last but indeed most refreshing paragraph of our discourse, because it is easier to make a universal agreement on a subject which is not yet extant and can hence be started correctly and in fullest harmony with the wishes of the majority, than to entrench upon an Augean stable.

In notation concordance will be facile upon the following points:

1. Notation operates with three kinds of instruments only:

Geometrical signs, i. e., positional and figural indices, and the arsenal of interpunction.

Figures, either Arabian or Roman, either large or small.

Latin letters, either large or small.

2. Her principle field will be dental anatomy and odontometry, which deal with the surfaces of the teeth, their landmarks, lines and points and cavities on them, etc.

3. The manual of notation shall accompany each dictionary.

To develop the essential features of the manual or grammar is not possible here. Simplicity will have to be the sublime law which has to guide in the selection of the details. Another law will be greatest compatibility; for that arrangement is best which can be coupled with all others or with the largest number of others. From this view, Dr. Palmer's dental notation recommends itself most. Also the more natural and less artificial an index looks, the quicker will it be comprehended and memorized. Thus to write for "roots diverging" an index like V, is nearly a photographical procedure.

With respect to the walls of carious cavities, I think it would be good to call its *four sides A*, *B*, *C*, *D*, the floor or *fundament*, however, *F*, and the side opposite to the floor, the *ceiling*, so to speak, *G*. Though many cavities may deserve the name polygonal, it will yet always be possible to speak of four side walls (or of their partial or entire absence;) and the ceiling of the cavity (G) is of course that side which is always missing, and has to be replaced by the filling material. Only one difficulty may remain in this little device, viz: which side shall be called the floor, F, for the floor is, strictly speaking, also a side wall? This question can be settled authoritatively (if not logically), for instance, by decreeing the cervical wall shall always have the name F. But I will not say a better logic were not possible; I only say I am no competent logician on this field. The most widely known system of an unrestricted universal notation is the international signal language used by the ocean steamers.

The most complete article on notation was, I believe, Dr. How's paper in the *Dental Cosmos* of 1890.

This completes what I have to say on Dental Nomenclature and Notation.

Two months ago, when I wrote that academical and sentimental article which appears in the *Dental Review* of this month I had not the least idea that I should be called to think the matter through, nor did I possess any more than only an instinctive feeling of what a practical scheme of nomenclature should be. It was only your kind instruction and stimulation which wound me up, and I shall be most happy if you find anything acceptable in my dissertation. That the latter became a little exhaustive was due to my intention to answer you *coram publico.* Separated as I am from all libraries during my visiting sojourn here in Chicago, I was not able to give much fullness to my inquiries; but I hope their general result will nevertheless be satisfactory.

It will be a pleasure for me to keep my further services at your disposition while I have the honor to remain, dear sir,

Yours most respectfully,

HANS BLOCK.

IOWA'S SHARE IN THE HISTORY AND PROGRESS OF DENTISTRY.

BY A. O. HUNT, D. D. S., IOWA CITY, IA.

In writing a history of organizations or individuals an obstacle presents itself in the form of a difficulty to record in detail all the influences of other organizations and individuals that have assisted in the results obtained. Neither can carry out to a successful termination unassisted any effort having for its object the relief of distress, the education of the masses or the betterment of mankind in their surroundings.

One may be a born leader and yet not be able to call together a following that will allow him to reach any very satisfactory results. So with organizations, those interested locally in the aims and objects for which they are banded together are too often demoralized by dissensions and selfish purposes. When other organizations and other individuals join with them in the movement it at once takes a general character and local pride and laudable ambition become the potent forces in making a special organization carry its part of the burden to the end.

Iowa has been influenced by these conditions during a work extending over a period of thirty years. It is not intended to speak of individuals or point out the special parts they may have had in the work reviewed. Men are but the instruments controlled by a higher power to aid in the advancement of human affairs. To one the angels speak, another is inspired, with others the motive is personal aggrandizement, but no matter what the force may be, its conception was in the realm of the great unknown, and one is thus impelled to go on as long as life lasts, and after this others take up the broken thread and assist in the weaving of the fabric. Completed it never can be.

Iowa has surely done her share in the advancement of dental science, and I shall be in little danger of exaggeration in what is presented for your consideration.

Prior to the organization of this society in 1863, there is little authentic data to be had. Judging from the rapid growth of the Iowa society in its first years there was evidently located throughout the State, many good and qualified practitioners, but the means of communication at that time was very crude, there being no railroads of any considerable length built at this time in the State. A few of the dentists located in the larger towns thought it would be well to gather the strength of the profession together in a society, and began a sort of missionary correspondence.

The first meeting consisting of only seven members created great enthusiasm, and as we look back at the ideas presented and discussed in the early sessions we are impressed that some of the questions are not yet settled for they come year after year before other society meetings for a solution.

1863. The following were some of the subjects for consideration: Vulcanite injurious to the tissues of the Oral Cavity on account of the Red Oxide of Mercury contained therein. The Use of Anæsthetics. Gold the proper Filling Material (amalgam denounced). Devitalizing Pulp with arsenious acid and Filling Root immediately. Treatment of Alveolar Abscess with Creosote and Iodine.

The requirements for admission to membership were a good reputation. One to be in regular practice, and those who had been students of dentistry for two years. Public meetings were to be the order, for the purpose of educating the people in the importance of the care of the teeth.

This was carried out for the three or four years following, Drs. Allport, Taft, Atkinson and others giving the lectures at various times, until the plan was unfortunately dropped.

1864. Drs. Kulp and Sayles returned from the American Dental Association which met at Niagara, and the American Dental Convention which met at Detroit, bringing with them Drs. Atkinson and Allport, each of whom gave their best thoughts and methods to the meeting.

Dr. Atkinson giving a clinic in the use of the mallet (then new), and one in the treatment of Alveolar Abscess with fistulous opening. Pumping creosote and iodine ("black devil") through the roots and fistula, filling the roots and cavity permanently at the same sitting.

Dr. Allport gave a clinic in the use of blocks and cylinders, a method comparatively new at that time. He also delivered the public address on the care of the teeth.

1865. This year was a memorable one in many respects. There were more than one hundred dentists in attendance, and this only the second year of its existence; many having ridden by stage four hundred or five hundred miles to be present. The society placed itself upon record, that none should enter the profession without graduating at a dental college, and also recorded its opposition to the general extraction of teeth. A committee was appointed to suppress dental quackery. Evidently there were some then as now who were merchants and believed they had something to sell, and were not professional men. This is likely unavoidable, as in all times armies and other large bodies of men are cursed with the unworthy element of "camp followers and hangers on."

The coming World's Columbian Dental Congress will beyond a doubt, fix the line of separation between those who lay claim to belong to the profession of dentistry, and who by persistently offering their *wares for sale* by the same methods of advertising adopted by the merchant, demonstrate clearly that they are not professional men. And those who hold to the better standards of all the professions. The latter only will be admitted as members of this congress.

Dr. Taft delivered the public address this year. One other matter occurring at this session is worthy of special mention. Dr. Lucy B. Hobbs was admitted to membership in the society, the first woman to secure this distinction, as she was also the first woman receiving the degree of Doctor of Dental Surgery, which was conferred by the Ohio Dental College in the year 1865.

The society passed a series of resolutions defining their position to be in favor of and encouraging women to adopt the profession of dentistry.

1866. Dr. C. Poor, of Dubuque, gave a clinic with his automatic piston mallet, the first of the kind.

Dental hygiene and nomenclature at this session received marked attention.

Dental legislation was part of the work laid out this year. A committee was appointed to secure it, and this course was continued for fifteen years until the present law was placed on the statute books in 1882.

Dental ethics was very much discussed at length, and the sense of the members was that a dental code ought to be established based upon the great code: "Do unto others as you would they should do unto you."

1867. In this year it was agreed that no student should be received by any practitioner for less than two years in the office, with a pledge of graduation at a dental college to complete the course of training.

A resolution was passed giving a hearty support to the colleges in their efforts to raise the standard of dental education. It appears that then, as now, the colleges were making an effort to reach the highest standard possible.

Application was made to the society to appoint some one to fill a lectureship on dental science in the Keokuk Medical College, which was the first effort to reconcile the relations of dentistry and medicine.

Nomenclature again was one of the topics for discussion and was ably presented by Dr. Judd, of St. Louis, he having the same year presented a new classification before the St. Louis Dental Society, which was adopted by that body.

The other subjects of importance were: Special Physiology (illustrated). Etiology of Dental Decay. Sensitive Dentine. Alveolar Abscess, etc.

1868. The subjects presented were: Importance of Preservation of the Dental Pulp (in deciduous teeth) for Dentition. Discussion of the Extraction of the Sixth Year Molar." Views much the same as now held.

There was presented a very interesting line of experiments and tests of saliva. In two hundred and fifty persons the reaction was principally acid. In two hundred and fifty animals the reaction was mostly alkaline.

The usual discussion of what material is best for filling cavities in the teeth. It was not settled however. The first paper on histology before this society was presented, the subject being Characteristics of the Dental Tissues. We were this year committed to the idea that dentistry was a specialty of medicine.

At this session was presented for the first time in its history a method of mounting a tooth crown on separate roots with a metal pin, which attracted much attention, but for some reason was never heard of afterward.

1869. Papers read setting forth the progress of dentistry up to that time. Another with Many Incidents of Office Practice, which might have been written for this present meeting. Compressors for bridling the duct of Steno was presented. This duct was the Waterloo of the dentist then. It was before the days of rubber dam. The presentation of so valued an appliance to the profession free and unpatented created such enthusiasm that there was not time enough at the meeting for members to express their appreciation of this generosity. A hearty resolution was passed in regard to it.

1870. The society adopted the Code of Ethics sent out by the American Dental Association. The subjects for discussion were: Vital Phenomena. Physiology of Diseases and Medicine in the Human System. Food for the Teeth (still undecided, I believe). Money was voted to the Barnum Testimonial Fund for his presentation of the rubber dam to the profession. Again, the Chemistry of Saliva received marked attention.

This year in all its awfulness was presented the subject of the Dental Pulp Preparatory to Filling the roots. While this subject is or ought to be well settled, it yet occupies the best part of all society meetings, even now, and is cussed and discussed alternately by all present and usually requires a mandatory motion to pass the subject.

The Evils of Vulcanite came up for its share of attention.

From the State University came a voluntary request for the establishment of a chair of dentistry in the medical department of that institution. This made the recognition of dentistry as a specialty of medicine complete so far as Iowa was concerned and was the corner stone of the present dental department.

1871. The subjects presented were: Phlebotomy. Dental Hygiene. Cell Life in Germination. Dental Chemistry. Dental Education. Anæsthetics. Professional Dignity. A New Basis for Artificial Dentures (celluloid).

1872. Theory vs. Practice. Diagnosis and Extraction. Treatment of Dental Caries. Treatment of Dental Pulps. Nitrous Oxide as an Anæsthetic. In this year the movement for the establishment of a dental department in the State University was begun, and continued each year until in 1882 the present department was established.

Up to this time we had dropped in with our knitting each year to meet our Illinois neighbors and they had been doing the same; to gossip, and tell all we knew. At this time it was thought it would be a good thing to hold a joint meeting. A resolution was therefore passed to meet with the Illinois Dental Society in 1873. This was the largest meeting of Dentists ever held in the West, outside of the American Dental Society. These records are full and were published conjointly and are scattered through the Dental Libraries. The good feeling and harmony thus secured has since that time been kept up. Both societies always have full representation from each State at all of their meetings.

1874. Subjects: Causes of derangement in first dentition.

The Legislative Committee reported having secured the recommendation of the passage of a dental law by the Govenor in his message and that a bill had been presented. An amusing incident occurred at the time of the consideration of the passage of this bill in the legislature. The wit of a granger lost the bill. The bill contained the usual clause that nothing in this act should interfere with the physicians extracting teeth. After the clerk had commenced to call the roll on the vote, a granger arose and offered the following amendment: " That nothing in this act shall be construed as preventing a farmer from extracting teeth from his drag or harrow." The point was so good that the body was convulsed with laughter and every man whose name was called after this, answered, No.

1875. Subjects: Chloroform as an Anaesthetic. It was condemned. Alternation the law of Vital Action. Abscess Treatment and immediate root filling.

A movement was inaugurated to appoint delegates to visit medical and other dental societies. This was a most excellent idea and should have been continued, but was not.

1876. Subjects: Fracture of the Inferior Maxillæ. Is the Degree of D. D. S., a badge of only partial culture? Replanting and Transplanting. Electricity in Dentistry, (illustrated by charts and models.) This was the first paper of the kind in the history of the profession. Degeneration of the Human Teeth.

1877. Another step forward was taken in regard to the education of students, viz.: That they should not have office pupilage before they had attended lectures.

Recognition of failures in operations was undoubtedly a thorn in the flesh then as now as the following paper was read: Disintegration, arrestation and prevention of the recurrence of decay on the proximal surfaces of the teeth. Plastic Fillings. Irregularities.

It seemed necessary at this time to call attention to the bad practice of ("I warrant all my operations") as a paper on this subject was read.

1878. The methods of having a Question Box was established this year which was a scheme creating much enthusiasm and instruction. Clinics seems to have been the main feature this year.

1879. Subjects: Capping or Destroying the Pulps. Which? Still unsettled. Pathology and treatment of teeth after spontaneous death of the pulp.

1880. • Subjects: A paper on the good and bad effects of extracting teeth was read and the discussions showed a marked advance in the effort to save the natural teeth. Forces employed in the circulation of the blood. Alveolar Abscess. No particular advancement over the year 1863. Duties to patients. Necessary qualifications for the ideal or model dentist. Lively discussion and a resolve on the part of each individual to reach the goal.

1881. A very enthusiastic meeting was held this year. Though not a joint meeting, the Illinois meeting was in session at Rock Island at the same time the Iowa Society was in session at Davenport.

Subject: Treatment of Exposed Pulp.

Something was amiss with the Dental Colleges at this time individually as a committee was appointed to investigate them and report. I think this was when the Delavan College was at the zenith of its glory. The Question Box and Clinics seem to have been the important part of the session.

1882. This was a year of excitement and enthusiasm as there had been consummated two of the important projects of the past years. The passage of the Dental Law and the establishment of the Dental Department in the University of Iowa.

The profession now felt they were on solid foundations and that they were repaid for their persistant courage and expensive outlay of means and strength.

This year was demonstrated for the first time before any society the methods of bridge work.

1883. Subjects: Effects of Arsenic. Dentists fraternal relations. Cleft Palate Obturators and Artificial Vela. A new method of attaching crowns. Anæsthetics, recommendation to discard the use of them in practice.

1884. Subjects: Anæsthesia, (the ghost will not down seemingly.) Mounting porcelain Crowns. Treatment of loose inferior incisors by banding and cementing the bands on. Dental Therapeutics. Bridge Work. Buttner Crown. Heroic treatment of abscess and fistula—Immediate root filling and cavity filled by the Herbst method. Another method of attaching crown to root. As the teeth need saving—Amalgam or Gold—Which? (A new departure.) Reflex Action. Dental Literature.

In all probability much time had been wasted heretofore by the informal manner in which essays had been presented and the rambling methods of discussion so that the following resolution was passed.

That a Committee of Critics be appointed to criticise the papers and modes of discussion.

1885. Extracting teeth. Presenting the principle of uninterrupted pressure in one direction to lessen the pain, and other principles not before brought to the attention of any society.

Law of proportion in Prosthetic Dentistry, relating to the comparative width of the teeth to each other in the same mouth.

Treatment of Alveolar Abscess without Fistula. Pulpless teeth and their final disposition. Health and Physical Endurance.

This paper discussed the importance of sunlight, exercise and the avoidance of awkward positions while operating and especially the tendency to overwork.

Diagnosis and treatment of Pulp Lesions. Duties of Professional Men. Advancement of Dental Science. Root-filling with Chloro Percha, demonstrated by Dr. Bowman, of St. Louis, one of the first appearances of this method.

Preparation of Proximal Cavities. Implanting Teeth. Uses of Cocaine in Dentistry.

1887. Twenty-fifth Anniversary. This was a very largely attended meeting.

The State Board of Examiners reported three hundred and sixty-three dentists as registered in the State in practice.

Qualifications and Subservance of Amalgam in Dental practice.

Discussion showed a marked change in the opinions of members in favoring the use of Amalgam.

Capping Pulps. Cement Fillings. Clinics. Implantation. Contour filling with Bonwill Mallet. Sponge Grafting. Rubber Dam Holders. Porcelain Faced Bicuspids. Peroxide of Hydrogen.

1888. Subjects: How best to promote and develop Dentistry. Tooth Pulp as a Ganglion. Lecture on the teeth from a Zoölogical standpoint. Nitrous Oxide and its demonstrations. Epulis Coma, its pathology and diagnosis. Copper Amalgam. Are the natural teeth saved at the expense of health and life. (Microbic theory and inoculation with instruments was the theme of this paper.) Porcelain settings in the visible portions of the anterior teeth. Amalgam versus Soft Gold; not yet settled which is best. Irregularities.

Clinics have always been an important feature of all the sessions of this society. Whenever "anything new under the sun" has appeared it has at once been demonstrated. The unfortunate mistake was made for many years of not keeping a careful record of clinics, and another of not publishing the transactions each year.

This has only been done occasionally and hence important matters are lost to the society or only held in the memory of individual members, and furthermore it is impossible to give credit for the great amount of work done or to discuss the character of it.

Iowa is indebted to the members of the profession of many states for their assistance in making its dental history. Many of the most prominent men have always been ready when called upon to give the benefit of their experience to us. It may be mentioned that Iowa, Illinois, Michigan, Missouri, Kansas, Minnesota, Nebraska, Indiana, Ohio and Wisconsin cannot hold a dental meeting without a good representation from each of the other States in attendance. This lovely bond of union between these states has continued for many years and there is little likelihood it will ever be broken, and what is the history of one will be to a great extent the history of the other.

We are well pleased with the present condition of the practice of dentistry in the State of Iowa. It numbers 150 members in its State Society and nearly as many in the Eastern Iowa Dental Society, which is only a young organization but an outgrowth of the progress of dental science among us.

There are about four hundred and fifty practitioners in the State.

Probably there is no State in the Union where so large a proportion of the practitioners are following the advanced methods of practice. I doubt whether there is a community which as a whole is any better informed as to the possibilities of dentistry. This may seem like saying too much perhaps, but when we consider the small percentage of illiteracy in the State (Iowa being second of all the States in this respect) it cannot create any amount of astonishment, on the part of any one.

The future history will move along on the same line of progress that has characterized the past, without doubt. Of one thing I am certain, there can be no advance for the good of the profession that will not meet with a ringing response from Iowa.

HISTORY OF THE PROGRESS OF DENTISTRY IN THE WEST.

BY J. TAFT, M. D., D. D. S., CINCINNATI, OHIO.

I have been asked to write on the History of the Progress of Dentistry in the West. This is not an easy thing to do, for various reasons: First, because in this, as in almost everything else, it is impossible to isolate the west from other parts of the country, so thoroughly are the different portions of the country interwoven and interblended that it is impossible to separate anything, so that it may be said this belongs exclusively to any specified territory, and particularly is this true of all that pertains to human progress. Second, it is not quite settled as to where the west is. It is generally conceded it is toward the sunset, but its eastern boundary has been upon a sliding scale, dependent upon the location and views of the persons considering the question. But for our present purpose there need not be much difficulty in deciding the question, where is the west? Since considering this subject we must go back to the time when the west, so called, embraced by far the larger part of our country.

In the time that we can now devote to this subject little more can be done, than to make a brief reference to a few of the points that stand out most prominently in the history of dentistry in the west and comparing the beginnings, as found seventy years ago, with the present status of dentistry we can at a sweep gather something of the progress that has been made, the extent of its growth and the outreach which it has made in this time.

In the first place, we may for a moment turn attention to the pioneer work in dental practice in the west. Those who introduced it did so without any of the aids and helpful instrumentalities upon which we now so much rely. Very little, indeed, was known of dentistry in the west over sixty years ago. If we turn to Ohio sixty years ago, when that part of the country was really of the west, very few dentists will be found, and the numbers become less as we look from that point still further west. However, a beginning was made about that time in the central portion of Ohio from which great results have been realized, the outreach of which has extended all over this broad land.

Of the few men engaged in the practice of dentistry in that State at that time were Chapin A. Harris, who resided in the year 1827 in Greenfield, Ohio, engaged in the practice of medicine. In the year 1826 Dr. John Harris, a brother of C. A., and the late Dr. James Taylor, resided in Bainbridge, Ohio. The latter a student of medicine with Dr. C. A. Harris. Dr. John Harris had some knowledge of dentistry which he imparted to Dr. Taylor. Together they entered upon the practice of dentistry, part of the time in Greenfield, the home of Dr. C. A. Harris, and there and then did Dr. Harris conceive the idea of taking up the practice of dentistry. After studying, working, and practicing with his brother and Dr. Taylor, in Greenfield, for about one year, he removed to Bloomfield, where he practiced dentistry and medicine for about two years, at the expiration of which time he removed to Fredericksburg, Va., where he attained such success in dental practice that he wholly abandoned the practice of general medicine. His success here stimulated his ambition and he was not long content in Fredericksburg, and after being there about a year and a half he removed to Baltimore, Md. Here it may be said, his great work for the profession began. What had gone before had been preparatory only to that which he was to accomplish in the future.

He did not enter the profession according to the present custom; he simply took hold of a few points and facts and built upon them and continued to build until a great and almost marvelous change was effected. Dentistry was not then a profession, but a confused, chaotic, unsystematized and very circumscribed calling, which was adopted by a few and followed chiefly in an experimental way. Very little was done at that time in the way of improvements with full confidence as to the outcome. To develop and work out the possibilities that these three men saw in this line of medical practice seems to have been the impelling power pressing them on to higher and higher attainments.

Dr. Chapin A. Harris was largely instrumental in the inauguration of three powerful agencies for the development of the science and art of dentistry, and for bringing it into a position and condition entitling it to be ranked as a profession, or rather as a department of the profession of medicine and surgery. To Dr. Harris is due the credit for the establishment of the first dental college in the world, and also for the inauguration of the first dental periodical in the world. He also added far more to the standard literature of dentistry than any one who had preceded him. Of him it may with emphasis be said, that whatever he did was grandly done. The results of his work have been, are, and will be felt not only in all the States of this country, but in all the countries of the world, where dentistry is practiced and known. It is true that a great proportion of Dr. Harris' work was not done in the west, but he was a western man, and for this, together with the fact that all honor is due to him, I make this brief reference.

Closely allied with Dr. Harris in all his special plans was the late Dr. James Taylor, to whom reference has already been made, and especially was this true in regard to college work. It was at one time contemplated that Dr. Taylor should be associated with Dr. Harris in the establishment of the college at Baltimore, but not seeing his way quite clear to go east he decided to remain in the west and make Cincinnati his home. The thought of establishing a college in the west was ever in his mind after he and Dr. Harris had planned for such an institution, and Dr. Harris' success only stimulated and incited Dr. Taylor's determination to found a dental college in the west. This he, with the aid and coöperation of Drs. John Allen, Melancthon Rogers and Jesse Cook, succeeded in accomplishing in 1845.

It is not the intention here to enter upon the history of these institutions, but merely to refer to them as the first two dental colleges in the world, the one in the east, the other in the west, the conception of both originating in the mutual devisings of the two persons first mentioned in this paper. The influence of both of these institutions, and especially the latter, has been very great throughout the west. Within a very few years after the organization their graduates were to be found in every place of any considerable importance throughout the west, and it is, in a large measure, such alumni as these who made the history of the profession in the west.

After these institutions had definitely passed the point of their experimental existence, the idea was entertained of organizing other similar schools in the west. In 1866 the Missouri Dental College was organized at St. Louis, Missouri; Dental Department at University of Michigan, 1875; Indiana Dental College, at Indianapolis, in 1879; Kansas City University, Dental Department, in 1881; Dental Department of California University, 1881; Chicago College of Dental Surgery, in 1882. We will not now stop to enumerate further, but simply say that a large number of dental colleges have been organized in the west within the last fifteen years. The influence of these institutions in developing the profession, in establishing it upon a firm foundation, in broadening its usefulness and commanding the regard of the world is beyond any definite computation. The demand for and the growth of institutions of this kind is a clear index of the progress of the profession. Their influence has been, and is being exerted not only in the west, but throughout this land, and, indeed, in all civilized countries of the world.

Dr. Taylor, like his eastern confrère, early saw the importance and realized the value of a periodical literature, and through his efforts and influence *The Dental Register of the West* was established in 1846, and was published and edited by him for nine years. The *American Journal of Dental Science*, edited by Dr. Harris, at Baltimore, and the *Dental Register*, edited by Dr. Taylor, at Cincinnati, were the first two dental journals in the world. The influence of journalistic literature for the development and upbuilding and progress in all departments of human occupation is now so manifest that the bare mention comes with sufficient emphasis to the mind of every intelligent person.

As the profession grew in numbers and in the outreach of its capacity, additional means of communication became necessary from time to time. Other journals were established in the west and have maintained their position of usefulness and power. The *Missouri Dental Journal* was first published and issued in 1869. The *American Dental Review* was issued at St. Louis in 1858. The *Archives of Dentistry* in 1865. The *St. Louis Dental Journal* in 1868. The *Texas Dental Journal* in 1883. The DENTAL REVIEW, of Chicago, in 1886. These dental journals have all been called into existence by demand for them in the profession, as avenues of communication of thought, ideas and practice, and, indeed, of all things pertaining to the profession. No satisfactory estimate can be made, or even proximately attained of the influence of these agencies in promoting the growth of the profession.

I have above referred to these two pioneers, not because there were not others who are worthy of mention, but because these two stood so prominent in dentistry in the west at that early day. They were the originators of enterprises, institutions, and lines of work which others afterward entered upon and carried forward to a fuller development and more mature fruitage. It is said that men make history, and this is true in regard to all that pertains to human progress. If we have a history of men, we have, in the main, all that pertains to progress of human affairs.

Now the agencies of progress pertaining to dentistry in the west are essentially the same as those operative elsewhere; but these agencies may be used with more efficiency in some localities than others. The pioneers in dentistry in the west were largely from other localities and chiefly from the eastern part of our country. Dentistry was very crude in its early periods in the west, as might be said of it everywhere. But it was under far greater embarrassment here than in the older parts. While there were some thoroughly competent dentists in the early days in the west, by far the larger number were inferior, and many were mere adventurers, with very defective qualifications, and too often dishonest as well as incompetent.

The facilities in the west for obtaining the needed supplies of materials, instruments, appliances, etc., were very meager indeed, as compared with the opportunities afforded in the older portions of the country. The people in pioneer days of the west were, for the most part, not such as would constitute a desirable cliental, nor serve as a stimulus to great achievements or rapid progress. But things did not long remain in this primitive and chaotic state. The elements of civilization were gradually being introduced, were becoming more and more self-assertive. The character of the population passed through rapid changes, constantly assuming a higher type of civilization. While this process was going on, another was taking place, viz., the infusion into the communities of a better class of dentists, and a better and improved phase of practice was the result. This change was of slow growth prior to the introduction of railroads, which event greatly facilitated travel and intercourse. This facility of communication brought rapid changes and progress in all departments of human occupation. Dentistry shared in this ongoing and in some respects seemed to outstrip many other callings.

No agency exercised a greater influence for progress in the west forty years ago than association work. The Mississippi Valley Dental Society was organized in 1843, at Cincinnati, Ohio. The following named dentists were active in effecting this organization: James Taylor, A. D. Bigelow, James Clark, G. T. Teter, J. W. Cook, M. Rogers, John Allen, H. Crane, Wm. M. Hunter, Chas. Bonsall, B. Strickland, W. E. Ide, all of Ohio. J. P. Ulrey, D. P. Hewitt, F. E. Swire, Wm. R. Winton, of Indiana. W. B. Ross, Wm. H. Goddard, of Kentucky. A Berry, of Mississippi. S. P. Hullihen, of Virginia. B. B. Brown, of Missouri. J. B. Ross, of Philadelphia. Many other names of prominent men of the profession might be added to this list, but enough are here given to show the fact that the outreach of this organization was wide. And this will be more fully emphasized when it is remembered that a large addition was early made to the membership, consisting of persons from nearly all the western States and many of the eastern States.

Within a very few years after this organization was effected and the value and importance of association work was demonstrated, other societies sprang up in the west. Among the first of these was the Western Dental Society, organized at St. Louis, Apr. 3d, 1856, embracing in its membership such men as Edward Hale, H. Barron, C. W. Spalding, A. Blake, H. J. McKellops, Isaiah Forbes, of St. Louis; H. E. Pebles, of Lexington, Missouri; W. W. Allport, of Chicago; W. W. Hicks, of Iowa, H. N. Lewis; of Illinois. The membership increased at each meeting, the members coming not only from Missouri but from all the surrounding States. By this means its influence for good was extended over a large territory. The St. Louis Dental Society was founded in 1856 and embraced in its membership the leading members of the profession in that State, viz., Drs. Hale, Forbes, McKellops, Blake Comstock, Leslie and others.

The enviable position held by the dental profession in St. Louis for the last forty years and more, is due in a large measure to the work of these two societies.

The Michigan State Dental Society was organized January 9th, 1856. Its first membership consisted of Joseph Mansfield, C. B. Porter, A. T. Metcalf, S. C. Whitney, H. Benedict, with a few others. Michigan was the first of the western States to organize a Dental Society. Its work directed attention to and elicited the interest of the profession, not only in the west, but throughout the country. It was, however, regarded generally as an uncertain experiment. Many doubts were expressed as to its success, but it lived and wrought good work. It has contributed its share to the literature of the profession, and was for many years a pioneer in State society work. In its annual meetings it has traversed almost the entire extent of the State, and carried its good influence to nearly every locality. While in many other States these meeting are always held in the same place, this society has spread its influence over its entire territory. It was by the instrumentality of this society that the Dental Department of the University of Michigan was founded, indeed, it is the child of the State society. Through its influence and efforts a law to regulate the practice of dentistry in the State was enacted by the legislature, the execution of which is in a good degree in the hands of the society.

This association has always aimed to guard well the honor of the profession in the State. It has ever stood squarely for the observance of true professional and ethical principles.

The Indiana State Dental Society was founded September 18, 1858, in which the following named persons were participants: P. G. C. Hunt, J. F. Johnson, G. Lupton, A. M. Moore, R. H. Hurd, S. B. Smith, J. P. Ulrey, G. C. North, and a number of other prominent dentists of the State. Indiana was the second of the western States to organize a State Society. It has maintained a vigorous condition from the beginning to the present time, and has been a power for the upbuilding and strengthening of the profession not only in that State but its influence has gone far beyond. It doubtless served as a stimulus to the neighboring and other States to do likewise.

After success was demonstrated by these two societies others were led to the establishment of similar organizations until now every State, with possibly two or three exceptions, has its dental society, and they are all working to some degree on lines indicated by these first organizations.

I have here simply referred to these four bodies to illustrate so far as may be the work that has been, and is being accomplished by asssociation workers. Perhaps to no other agency does our profession owe more of its progress than to these just referred to. I here make no reference to our educational institutions, nor specially to the literature of the profession. Both of these have exercised a very great influence in the upbuilding and development of our profession. But it may be said that these have been very greatly influenced by association work, and it is very questionable whether they would ever have attained to any considerable degree of prominence or efficiency in the absence of associative work on the part of the profession. This we regard as in a large measure the foundation and the corner stone of our noble profession. And if we are to maintain the structure in its integrity and still further develop and expand its growth, it will be necessary to look to, and carefully guard this great instrumentality. And there is great encouragement and a prophecy of good for the future in the fact that the profession in a large measure is realizing this.

There are now five distinct classes of dental association work, viz., 1. That more intimately connected with the general medical profession. 2. That exhibited in our national associations. 3. That exhibited in our State associations. 4. That exhibited in district societies. 5. That exhibited in city societies. Each of these is working, in a degree at least, upon different lines of work, differing from the others, but the work of all having a common aim directed to a common point, viz., the development, upbuilding, and growth of the profession.

DISCUSSION.

Dr. CUSHING: Mr. President, I do not know what I can say with respect to the very interesting statements that Prof. Taft has given us, except that it is very evident the west has had a very prominent influence in shaping the progress of the profession throughout the country, and as he says throughout the world. I have some personal recollection of some of the older members in the profession to whom he referred, most of whom have passed away. My relations with them were of a very pleasant character, and I can testify to the very strong influence that they had upon all who came in contact with them for the elevation of the profession. I used to enjoy many years ago attending the Mississippi Valley Dental Association, which was one of the pioneer organizations, and many of the members of that society were of a character that stimulated and inspired the younger men to go forward and to do better work. We have had a wider influence in the west in the upbuilding of the profession than perhaps is generally thought to be the case.

Dr. WM. O. KULP: It is always wise in tracing the history of any society, or progress of any kind, to have some of the pioneers who are still living present; thus the record is more apt to be correct. Within the last few years many of the old pioneers in dentistry in the west have passed away, and it admonishes us who are following in the tracks of the older ones, to put the house in order, and tell the younger ones what we know of the early days of our specialty in this part of the country. In the presence of Dr. Taft, I feel as I did thirty-six years ago when I first knew him. When I was full of ambition and push, desiring to accomplish all that was possible to accomplish in what I undertook. When I entered dentistry, my first advisors were Dr. Taft and Dr. Watt. The latter this year we laid aside. Dr. Allport was another of my staunch friends at that time, and we have also laid him aside.

James Taylor, and many others, whom I met then as dental fathers, have been laid aside. When I count the years that have passed since that time, it makes me think I must be getting old, that my place must soon be among the fathers, to be shoved aside by the younger enterprising men. I have not done as much for dentistry as I thought I should when I began it thirty-six years ago. I have not accomplished nearly what I expected to when I began the practice. I had grand ambitions, laudable emulations, but duties to my family and business opportunities lured me from my student paths, and interfered with my plans.

The opportunities for investigation at that time were not what they are now. We had to originate almost everything with which we made any progress. We had to originate nearly all our instruments to work with. The profession had a lock and key on the doors of their offices, as well as their mouths. Whatever a dentist did was done for himself and not for others. Of course, there were a few exceptions, and they were such as Dr. Taft, and others, who did wonders in the way of opening the avenues of information. It is not more than twenty-five or thirty years ago since we gained access to the private rooms of dentists. Prior to that time, they made it a point not to invite their fellow practitioners to their offices. There was no professional courtesy, no good fellowship with few exceptions. Of course this was discouraging to a great many, but it stimulated me more than if the doors had been thrown wide open. While a medical student, I had the misfortune of having a cuspid decay until the pulp was nearly exposed. Among the patients of my preceptor was a broken down dentist who came from the east to the western climate for his health. I complained of my tooth when he said he would try and fix it for me. Finally he did fix it, filling it with tin foil.

In a day or two I began to have trouble with it. In the course of a week I could not see out of the right eye. I then said to my preceptor that I would take up the specialty of dentistry, because if I could cure my fellows of toothache, I would do better for them than to cure them of bellyache. He said it was doubtless a good idea. I started in dentistry at that time, getting what instructions I could from our broken down dentist patient, who promised me as he went further west, that if he died he would give me his library and all of his instruments. At the end of about six months, I received an express package. When upon opening it—behold, it was from my old friend. He had died, and sent me his library, instruments, and all the materials he had on hand with his good will. I unpacked the instruments and opened a dental office in my preceptor's office. That was the first start in practical dentistry I had.

Unfortunately some sixteen years ago, all these records were burnt up in a fire. Among which many letters from the pioneers in the professions which were a great deal of comfort to me, which I sadly miss. I spent many months in St. Louis, among the dentists, where I obtained a great deal of information from all of them. Among my best friends at that time were Drs. Forbes and Judd, also Dr. Peebles. All whom are now dead. Among the living, I want to give due credit to Eames, Bowman, McKellops and all the rest.

Beginning the practice of dentistry in 1858 in Iowa, I have remained in the State ever since. The State seems to have developed wonderfully while I have been in it, and while I have had great temptations to go outside of the State, I have never felt that I could turn my back on it. It is my home from preference. Whatever I have done to help to bring the dental profession of the State up to its present status, I have done from the love of the State and its people. If we compare dentistry in Iowa in 1858 with that of the present time, it is marvelous to think of, especially for those of us who passed through that era up to the present time. It is not necessary that I shall go over many things, but there are some personal experiences that I have passed through that might be profitable and interesting.

In the early history of dentistry, we found that the great majority of dentists practicing dentistry in the State, were men who practiced it simply as a side show. They were jewelers who spent most of their time in repairing watches and doing a little dental work from time to time. Another class of dentists we had were men who were itinerent preachers, singing school teachers, who had a smattering of dentistry and practiced it along with preaching and music. Others were photographers, who would extract teeth and put in tin foil filling, silver plates, etc. It was a rare thing to find a dentist who practiced dentistry as a specialty in those days. The larger towns had one or two, after the introduction of rubber. After its introduction, a great many sprang up who learned the art of extracting teeth and making rubber plates.

That seems to have been their entire ambition. Through the aid of Dr. Forbes, as much as any one, I learned how to contour gold fillings. I shall ever remember the first central incisor I built out, which was broken off in the central proximal surface for nearly one-third of the tooth. I built it out and charged the husband of the lady $15.00 for the work. I never came so near being driven out of town as I was then. I was considered a monster and thief for charging such a price for filling a tooth. Everybody that saw the filling joined in with the husband. My neighbor dentist considered it a piece of advertising. But as I had some fight in me, I concluded to remain and fight it out. The result was, I got more and more of that kind of work from year to year. I often received letters from dentists in the interior of the State, offering me quite a sum of money to give them the secret of the preparation of gold I used to build out these teeth.

Dr. Harlan: I would like to say a few words about the pioneers who went to California, and before I say anything about them I would like to say in Dr. Taft's list of journals started in the west, he omitted to mention *The Dental Jairus*, of San Francisco, and the *People's Dental Journal*, of Chicago.

While I was listening to the remarks of Dr. Kulp, I ran over in my mind the facilities for education and instruction that the dentist of 1855-6-7, had in the United States. At that time there were five dental periodicals published in the United States. There were at least ten original works on dentistry in English. They originated in the United States and a good many smaller ones. There were at least a dozen or fifteen republications of translations from the French and German. There was a republication of the work of Bell, and various other authors, all of which works were accessible to dental students at that time. Of course, we did not have such an easy means of communication in 1855-6-7, as we have now by means of railroads and extension of telegraph lines; but there were steamboats, stage lines and stage expresses. At that time there were some dental colleges in the United States—in Baltimore, Cincinnati, Philadelphia, in 1855. There was also a dental college started in Syracuse, New York, in 1852; a dental college started in the Transalvania University at Lexington, Ky., so that the means of instruction were not really as meager as they seemed to be. Of course in Iowa, which was some distance away from the great centers, it was a little different. At nearly all of the military posts along the great waterways, there were dentists as far back as 1815; there were more than 300 dental practitioners east of the Ohio river, so that for the time there were quite enough dentists to accommodate the population. I think it was John S. Clark who spent his time between St. Louis and New Orleans in those early days in practicing dentistry. The late William H. Goddard practiced in 1832, and the late Dr. Gibbs practiced dentistry in Chicago, in 1833. Another dentist, who died two or three years ago in Chicago, practiced dentistry there in 1835-6. Dr. Goddard practiced in Ottawa, Ill.; he also practiced in Chicago. Dr. Goddard told me that in 1823, the art of swaging gold was not known, but it was detailed in *Fitch's Dental Surgery*, which was published in 1827, so that after 1845-8, the facilities for the acquirement of knowledge, especially toward the great centers, were very good.

It was in 1848–9 that John Tomes delivered the most brilliant course of lectures that had ever been delivered by any dentist in the world prior to that time, on Dental Physiology. These lectures furnish as good reading as any of the most modern works on physiology, barring the microscopical work that has been done and incorporated in the later text-books, such as Landois,' Fosters and other works on physiology. In 1848-9 there were a great many qualified dentists who went to California by way of Panama and around the horn. We have one right in the room who went that way in 1849. I refer to Dr. Cushing. He did not say anything about it, but he practiced dentistry in the early days. It was such men as Dr. Cushing that gave character to the practice of dentistry in the far west. Dr. Blake, who is present with us to-day, went to California quite early, and he ought to know something about the work of the pioneer dentist on the Pacific coast. I recall the names of a great many. It was on account of the high grade of intelligence, perseverance and the determination to succeed that has given the Pacific slope the high reputation that dentists bear. It was through their efforts on the coast that we have a dental college and that dental societies in the far western country have been organized. Of course, I recognize that in 1856 the Michigan State Dental Society was organized, and in 1858 the Indiana State Dental Society and Western Dental Society. These societies exerted a powerful influence. I feel proud to think that I was born in the west, and that I have lived and been able to associate with some of those pioneers and to learn from them of their early struggles. I want to say to you gentlemen that in order to make your influence felt and help to make history you must do some original thinking and some original work yourselves. You cannot keep up the reputation of any portion of the country without having investigators, without having authors and essayists. Every man has to rise little by little until he can fly across the Mississippi river. If he cannot do that, his wings will grow too large and finally he must swim over. I hope Dr. Blake will say something of the pioneer dentists in California, of whom he is one.

Dr. BLAKE, San Francisco: I did not expect to be called upon to say anything about the pioneers in dentistry, but as some of the speakers have touched upon California, I think I am the only one who practiced there. Dr. Cushing has not practiced there lately. I commenced to practice in California early in January, 1850. I left New Orleans in September, 1849, and went by way of the Isthmus, and as Dr. Harlan says, I know some of the old pioneers, but I do not recollect Dr. Cushing. I would like to ask him where he practiced?

Dr. CUSHING: I practiced up in the mines.

Dr. BLAKE (continuing): In speaking of the old pioneer dentists in California, they are nearly all gone.

The first man to practice in California was Dr. Blackman, who came from Virginia, and began to practice early in '48, but he was engaged in practice only a short time, leaving in '49.

Some of those who practiced, kept it up until they made some money and then left. Of the old pioneers. aside from myself, I know of only two living and they are: Dr. Galen Burdell and Dr. H. W. Cogswell. They have not done any practice for several years. I was raised in New York City and Dr. Burdell and myself were the only dentists in California that hailed from New York in the early days. Dr. Burdell has retired. He owns a big ranch, and Dr. Cogswell has a big polytechnic school. There were but two dentists in San Francisco when Dr. Burdell came there. Dr. Burdell came to San Francisco on the ship "Duxbury," acting as ship surgeon, arriving in April, 1849. His preceptors were Drs. John and Harvey Burdell, well-known New York dentists. Another uncle was dentist and surgeon to the Emperor of Brazil. J. L. Cogswell came there in '49, but did not commence practice till two or three years later. He is a brother of H. W. Cogswell. James Birge also came there in '49 but did not commence to practice on the coast until several years later. He has recently died. Speaking of the living dentists, I am the only one left of the old pioneers that has practiced there up to the present time.

Dr. INGERSOLL: I cannot add anything to the interest of the subject which has been so thoroughly dwelt upon by Prof. Taft. He has presented the growth of the profession on an educational basis, and I glory in the fact that dentistry has had its rise and progress in colleges, societies, and in the literature of the profession.

Dr. BLACK: I can only say I have been greatly interested in the paper and in the discussions we have heard. I think it is well to indulge in these reminiscences occasionally, but if Dr. Cushing is only a boy, what can be said of me. I am not yet born. (Laughter.) I am not old enough to talk about these things, and yet I remember a great many of the incidents that have been detailed. I remember something of the societies that met in St. Louis before the war, and I knew quite a number of the dentists at that time.

I would like to speak a word or two as to the work done by Dr. Judd. Dr. Judd's work did not last many years; it was not spread over so many years as a number of other men that have been mentioned. He did not begin so early in life, but his work was vigorous and exerted a powerful influence. He was one of our own members in the Illinois society, and for a long time prominent in the work of the St. Louis and Missouri State societies. I may say he was active in the National and other societies, but not so early as some others.

A word in regard to the facilities for dental education in those days. It is true the books that have been spoken of, and the journals were published and were obtainable; but it is also true that through the west they were unknown, and consequently unobtainable. Even the older dentists in the west, as I personally know, did not know of the books, and so far as their influence in the west is concerned at that time, they might as well not have been published. There were books if we had known how to obtain them. There were quite a number of books not spoken of that were obtainable at the time. The literature at that time was well written. Many of the things related were not useful to us. I think I may say that and not go beyond bounds.

In regard to the dissemination of thought, it has been said that discoveries bring about an advance. That is true. Without the march of information that we get by study, by investigation we have but little progress; but if we have not men who push these discoveries and spread them broadcast, and have an influence in bringing them to the minds of men they will be of little value. They will not influence the masses, and their influence will not be felt.

Dr. J. TAFT: There is one phase of former practice that it is well to remember, especially in view of the fact that it would now meet general disapproval, and that is the migratory character of it. In the early days many even good practitioners went from one place to another and practiced. This practice was common in the two decades from 1830 to 1850 and men traveled long distances to practice their profession, and it was regarded as entirely proper. Dr. Chapin A. Harris, his brother John, Dr. Taylor, and Dr. C. O. Cone indulged in this practice. Dr. Goddard also practiced in different places. Sometimes these migrations were made with a view to finding a permanent location, but more frequently with a view of an itinerent practice, because sufficient encouragement was not found in one place to occupy their entire time. It was well from an educational standpoint that the members of our profession did go into different localities and make their abilities known and the possibilities of the profession of dentistry. We have itinerents from that day to this, but they are usually now not regarded with much favor. I think that is a point that we ought not to lose sight of. I began the study of dentistry in 1841. The only book I could obtain was Fitch's Dental Surgery, but a short time after that I was able to get others. The books referred to by Professor Harlan as translations were published in the *American Journal of Dental Science* as a library department to that journal until these translations and republications were presented to the profession. Dental literature was very scarce indeed.

Another thing we should bear in mind is that many of those men who were the most prominent in the dental profession had a medical education. Quite a number of them were men who had been practicing physicians, or who had studied medicine with a view of practicing it and ultimately drifted into dentistry as a specialty. Dr. Harris was one of these men. At that time the greater amount of work that was done in the way of literature for the profession was prepared by men who were medically educated. Many of them were scholarly men. There were men in the early days of our profession who were scholarly, able to translate various languages, and who were cultured in the sciences. The progress of our profession to-day and the high character it bears are in a great degree dependent upon the fact that most of the leading men were scholarly and scientific.

GUARDIANSHIP OF THE TEETH—PARENTAL, PERSONAL, PROFESSIONAL.

BY GRAFTON MUNROE, A. M., D. D. S., SPRINGFIELD, ILL.

The position of guardian of a trust of any sort whatsoever is a position too often filled by those who have no genuine appreciation of the object, animate or inanimate, submitted to his or her care. The dentist in his position of guardian of the teeth has a duty of a serious character to perform in protecting his patient's teeth against the ravages of decay; and that dentist, who will sacrifice the natural organs because such work is easy compared with the labor and tedium of nerve devitalization and extirpation, and consequent restoration of the natural organ without entire artificial substitute is not fit to fill the position of guardian of the teeth.

Realizing then, the importance of the position of one, who is by choice a guardian of the organs of mastication, I have thought it proper to speak of the subject under three heads. First—*Parental.* Having recently reached the exalted position of parent, the writer feels himself, in a measure, at least, capable of speaking on this phase of the subject. Here a suggestion—let every dentist become a parent.

In a practice of a little over eight years it has been a frequent surprise to find parents with no knowledge of even the number of teeth constituting the temporary set; so great has been this want of knowledge that parents sometimes actually set their ignorance against the knowledge of a practitioner of dentistry in determining the care of the six year molar, affirming that the tooth in question is to be shed and consequently must belong to the first set.

How can we as professional guardians overcome this want of knowledge on the part of the *parental guardians* of the teeth. Physiology is a branch which, in a general way is or should be taught in all schools. The functions and the anatomy of the teeth receive their portion of this general study and the knowledge is soon forgotten. Most parents have had some acquaintance with a dentist, and it is a duty the parent owes the offspring to obtain some knowledge of the teeth. Placed at the very entrance of the alimentary canal, the teeth certainly occupy a position of prominence in the economy of the human organism and so much so that their importance should not be neglected in our thoughts, and in our acquaintance with our dentist we should use the opportunity to familiarize ourselves with the needs and care of the children's teeth. Could parents but bear this in mind, it can be safely affirmed that they would find their dentist a most willing imparter of the knowledge necessary to a proper understanding of the care of children's teeth.

Let parents awaken to the proper appreciation of the natural organs and then they can better preach to the children. The use of the brush in the presence of the little ones, before their teeth are all in place, encourages their curiosity and they must soon know what it is for and why they can't have one too.

The proper attention to the diet and eating of the little ones given to our charge cannot be too forcibly impressed upon parents. The gratification of the appetite for sweets and food not easily assimulated is too often practiced by those having the care of children, to such an extent as to cause serious impairment of these important organs.

Did parents bestow as little care upon the hair and nails, although less firm but kindred in their origin, as is given the teeth we would have a race as homely in appearance as are many of the mouths that come into our care.

Many parents are so thoughtless of the needs of attention to the children's teeth that their neglect becomes apparent to them at such a time only as when the child is suffering with an aching tooth. Then they are surprised that the child's teeth should decay so rapidly, when the parents themselves have neglected the first principles of watchfulness and proper tuition of the child to cleanliness of these organs.

Parents should avoid all rehearsals in the presence of their children of what they term the horrors of dental operations. Children would then not come to us professional guardians with the idea each time we made a turn of our hand to procure some necessary aid to the examination of the teeth or aid to the proper performance of a dental operation, that we were about to inflict a torture similar to the times of the Spanish inquisition. While I do not believe in working by deceiving their confidence, I do think that better results would be accomplished by the more judicious use of the tougue on the part of parents concerning the pains occasioned by a visit to the dentist.

An unfortunately large portion of the responsibility for the character of the teeth falls upon the maternal side; at the same time it cannot be denied that the paternal exercises a large portion in the line of heredity. The influences are so marked along this line that it is almost safe to say that "like begets like," though exceptions often prove the rule. If by some means there could be devised a way of escape from the baneful results of the inheritance of poor teeth, our branch of medicine would be called forever blessèd. Try as we may the law of heredity stands as a constant menace.

The formation of the teeth commencing so early as the forty-fifth day of pregnancy warrants the assertion that mother's have a charge to keep, and keep well they must, or the results of their poor guardianship will be painfully manifest.

Mothers have a charge in caring for their health during the period of gestation so that all the organs and the health of the life within her may be of the highest type. The law of the survival of the fittest ought to stir both mothers and fathers to the desire to impart to their offspring organs of perfect mechanism.

The changes in nutrition and the unfortunate nervous disorders which so often accompany the period of pregnancy all have their influence upon the formation of the teeth. The use of proper bone-making foods might be a good regimé for many mothers, and attention to proper exercise and hygiene would no doubt have a happy result in the production of healthier organs, even down to the teeth.

Second—*Personal*, includes under this head the dentist himself, who is naturally looked to as the criterion of practice, so that it may be said of us that "we practice what we preach." Nothing speaks louder to me in terms commendatory of our habits of life than the exhibition of a clean mouth. The beauty of a fine face and a face expressive of character is often marred by unkept teeth. Sickness and certain conditions of the oral secretions on doubt offer considerable impediment to cleanliness of the mouth, but in many cases the mouth is like many sepulchres—clean without, but within they are the places of almost the equivalent of dead men's bones and rottenness. I have often tried to impress upon my patients—when operating at a putrescent pulp canal—the importance of frequent visits for the care of the dentist, so that such awful surprises, calling forth expressions—"Is that in my mouth?" or "I didn't know that such a thing could take place in the mouth" —would not occur, and in many cases the olfactories of both patient and dentist would be spared. As in the case of parents in the presence of their children, so we as friend to friend, should be careful how we use that unruly member, the tongue.

Often have I had patients come under my care, who though never having been under a dentist's care were so well acquainted by proxy, with all the operations necessary in the care of the teeth that they fairly trembled before the work began. Upon inquiry into the cause of this fear, it was found to be wholly based upon information received from a friend.

Few people in their personal attention to their mouths and teeth can be accused of too scrupulous care. The brush should never be used less than twice a day, and the well-directed use of a wash of an antiseptic nature would often prove a most wholesome practice. As the mouth does not afford easy access for personal observation it becomes a duty to make an annual (at least) call at the dentist's office, and let us hope that the day is not far distant when it shall become as much of a personal obligation to look after the condition of the mouth and teeth as it has become so in regard to complying with a sanitary measure requiring the vaccination of a child before it can enter a public school.

The use of sweetmeats at promiscuous times without any cleansing of the mouth or teeth thereafter, gives the mouth a condition favorable to the progress of caries. This is exemplified by the condition known to exist in the mouths of those subjected only to the fumes of sweets.

Females are blessed with teeth of unfortunately feebler constitution than males, though their lives are subject to influences which would make stronger teeth yield. Before passing from this division of my subject I must give a few moments to the guardianship of the teeth during that important period through which only mothers pass. For so long a time has pregnancy been regarded as having a baneful effect upon the teeth and so commonly does the notion prevail that it is a trite saying—"for every child a tooth." Because of the close relations which the teeth bear in sympathy with, if not in direct connection with the other parts of the body, it is very important that the owners of these necessary organs of mastication should guard well their charge. Subjected to the so many varied changes in the general system which characterize the pregnant state it is not a wonder that with the little care they get the teeth are a frequent source of annoyance. The worry and general nervous condition of mothers attendant upon pregnancy are often increased by poorly cared for teeth. Too much stress cannot be laid upon the importance of attention to the teeth very early after parturition, for the changed condition of the salivary and buccal secretions, together with the ever present lactic acid fermentation, will produce sad havoc, if measures are not taken to counteract them.

That part of my subject which comes nearer to our own domain is professional guardianship. Men who are students by choice and who have been educated along certain lines and who give up the best part of their time to the acquisition of experience and skill are deserving the title of professionals. Being thus specially educated for the care of the teeth, it becomes us to be studiously watchful of these organs in the mouths of those who place themselves in our care, endeavoring by a conscientious discharge of duty to inspire thorough confidence on the part of the patient. Impress upon patients the necessity for a regular examination of the teeth and always endeavor to be accurate even though the statement of facts may excite surprise. Never be reluctant to show a patient with a glass the condition of the teeth. Many a conscientious dentist has no doubt frightened a patient out of his guardianship by the assertion that there were many cavities in the teeth, whereas had he pointed out each cavity—the patient viewing them in a mirror (if so desired),—would have better understood the existing conditions. Avoid as far as possible hurried work and let the patients know that you seek thoroughness and that a slighted piece of work is apt to prove of less durability. As a professional guardian the dentist should be a man of clean hands and clean heart; in fact he should be preëminently a clean man. Many of the subjects of our care, in the mouths of our patients are often not great incentives to cleanliness, but it should be our duty to raise them to a higher level and let our personal condition be the criterion of cleanness. Moral cleanness should also be urged, for as men ourselves we would wish to intrust our own families in the care of only such men as we knew were clean. Strict attention to business is as cardinal a point as any of those already mentioned. The dentist who is not readily found and is such an one as has to be sought out in some gaming place or on some street corner had better relinquish his title of guardian of the teeth and not lower the standard to which he ought to have aimed. Agassiz, in his will, wrote himself *Louis Agassiz, Teacher*. In our daily toils we should make ourselves conspicuously willing to teach. I have often had patients say, "excuse me doctor, if I ask you many questions, but I would like to know this or that. It is our privilege, and should be considered our duty, to spend much time in learning for all and after such is acquired by study, to be glad to teach all. Would it not be a good idea for dentists without being obtrusively conspicuous or over persistent in seeking public attention to endeavor to have--say one hour a month given in our public schools to a talk by a dentist of the community—having it so arranged that it would not be same man each time?

Endeavor to have your workings and doings free from the mysterious. Teach in all the ways you can without parading your knowledge and above all things do not boast your learning above others. Would that we as dentists were all circumstanced and so disposed with the necessary learning and zeal, after the manner of Agassiz—to employ our energy so that the almighty dollar would not be so preëminently the theme of our song and that the possibilities of scientific dental work would not be based on the hope of remuneration. As guardian of the teeth each dentist bears a relation to his fellow practitioner and to his brother in the general practice of medicine. Happy that day when the general practitioner of medicine awakens to the importance of giving due consideration to the organs which engage the care of the dental practitioner. If the causes of many of the troubles to which flesh is heir were looked for in the teeth and relief of some dental lesion sought, by reference to a practitioner of dentistry, much unnecessary dosing would be saved and the science of medicine in all its branches would be a greater help to mankind. Let dentists seek to avoid the promptings of jealousy and be ready to give to his fellows credit for accomplishing something. In other words: "Give the devil his dues"—even tho' he be a pretty poor devil.

The limitations which the laws of ethics place about a professional guardian, should be well adhered to and at the same time justly used. The rights claimed to patent any new method or new article should be as far above us as it seems removed from the general practitioner of medicine, and yet when looked at from the stand point of necessity for personal maintenance, it appears in another light. We hope for good results along this line in the efforts that are being made under the name of the Dental Protective Association, but whatever we may discover or invent, the day will not come in our time when there will not be ravages of past disease to repair and conditions of present disorder to cure. In the words of another " What can we who must do our daily tasks do toward broadening the horizon of dentistry, toward hastening the happy day when dental disorders shall be rather prevented than cured? It is not too violent an exercise of the imagination to fancy the dental practitioner of the future receiving a new patient; the chair, the mouth mirror, the probes will all be there and the examination tooth by tooth as minute as now. There will follow a series of questions covering the ancestry, the habitual surroundings, the personal history and habits of the patient, and at last the dentist will give his judgment."

There are two other points upon which I wish to touch and I will have done. The dentist's fee should be one that will compensate him for the guardianship he endeavors to exert over these most important organs but amid his desires for proper compensation, it might be well to have a little charity for those who are his victims.

The dentists' health is another requisite, which will be the better promoted by attention to proper light, proper exercise and proper hygiene in general, for with a good nerve, a good stomach and a steady hand he can handle all, from the most peevish, fretful and spoilt child to the acutely sensitive or even pregnant woman and the nervously timid man.

Let us strive to have a sound mind in a sound body and give to our protege's the attention due them at the hands of Professional Guardians.

PROCEEDINGS OF SOCIETIES.

ILLINOIS STATE DENTAL SOCIETY.

DISCUSSION ON DR. CRAVENS' PAPER.*

Dr. A. W. **Harlan**, Chicago: In looking over the programme I saw to my surprise that no one had been appointed to open this discussion, and I have not prepared myself for this task. I do not know how many years the discussion of the filling of roots will consume in the future, but I suppose that a few of us will fill the roots of teeth immediately, and a great many of us will not.

As to proposition one, I do not see that there is any particular objection to filling the root of a tooth after heroic extirpation of the pulp. I do not see any objection to filling the root of a tooth after removing the devitalized pulp without putrescence. I do see objections to filling the roots of teeth immediately after removing putrescent pulps. When a tooth pulp is destroyed or dies without the aid of a medicinal agent, the animal contents of the dentine of the tooth die also. I do not think any microscopist has ever been able to demonstrate life in the dentine of a tooth after the death of the pulp. In the process of destruction of a pulp through the agency of micro-organisms, sulphureted and probably phosphureted hydrogen are both evolved. The dentine of a tooth will certainly be able to take up a certain quantity of both these gases, otherwise there would be no smell of the dentine of a tooth beyond the surface of the pulp canal. Every one practicing dentistry must know that prior to reaching the pulp chamber after the pulp is dead, the odor of sulphureted hydrogen has appeared to him noticeably at some distance from it. This would absolutely prove the diffusion of the gases of decomposition throughout the dentine. Instances are not wanting to prove also that teeth have been split after the death of the pulp from the expansion of gases. I remember several instances of that kind. The question for us, however, is whether these gases are deleterious or not. It would take a longer essay than I can condense into a few moments to give all the reasons why the gases that are displaced by a platinum wire or any other instrument are not wholly displaced from the interior of the dentine. There is one thing very certain, and that is this: That after the filling of a root of a tooth, no matter how perfectly it may be done, without any preparatory treatment other than the purely mechanical, that that tooth will afterward be a lame tooth; that it will be subject to elongations, and it will be a tooth that is not entirely comfortable to its possessor. There is one possibility perhaps of that not being always true, namely, the possibility of the encystment of the apex, and still that would not always be a bar to the future weakness of the tooth. Of course, if putrescence has only begun the poisoning of the interior of the dentine would be very slight, and it is so easy to neutralize or nullify such a poison before filling the root, that I should say that that was certainly very desirable. I believe I would even consider that it would be better to use hot water in a case of that kind than to use nothing, because in that way we might get rid of some substances that might be soluble in water and thereby prevent further impairment of the tooth.

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* See page 446.

As to the question of treatment of pulpless teeth having an abscess and a fistulous opening, I shall not dwell particularly upon that except in this respect, that the soaking of the interior of a tooth with any medicinal agent certainly does not cure the abscess. That is not the object of introducing an agent of any kind, even water. The object of using water, peroxide of hydrogen, or Labarraque's solution of chlorinated soda would be for cleansing purposes. The introduction of an agent that would have a tendency to neutralize any of the cadaveric alkaloids that might be stored in the dentine explains itself. That is why they are used. After that has been accomplished, I do not see any object in waiting, before filling the root, unless there is some mechanical reason.

The fifth proposition. Is immediate root-filling advisable where there is an abscess without a fistulous opening? I should say decidedly no. A great many cases of pulpless teeth, where there are no fistulous openings, are really encysted, and the only way you can be absolutely certain of that is to adjust the rubber dam before they are drilled into. You all know this. Absence of odor and moisture and the preservation of color will usually determine almost infallibly that there is encystment of the apex. It would be perfectly safe to fill such a root at once, but if there is pus or a watery discharge you can fill the root if you like. I will not. I will not do it for this reason: I do not like to convert a simple, innocent, cold, blind abscess of that character into an acute volcanic eruption which I may not be able to control. The disastrous results following the indiscriminate filling of roots of that kind have been too numerous to permit me to indulge in that sort of pastime. I have seen a set of teeth from the second incisor to the second molar loosened in their sockets, alveolar processes necrosed and removed, resulting from the filling of roots under such circumstances. I have seen that from other conditions, but this condition is mentioned particularly. That is one place where the evolution of sulphuretted or phosphureted hydrogen and deposition of leucomaines and ptomaines and cadaveric products is more likely to become thoroughly infiltrated into the dentine of a tooth, and these must be driven out, and you cannot drive them out with water or instruments, or with a platinum wire with an amount of heat that is safe to introduce into the root of a tooth. How many degrees of heat are necessary? Probably not more than 300, and that has been demonstrated to be ineffectual as a destroyer of the micro-organisms themselves, or their spores that might be present in such a situation. That is one place out of the five I should say where great care should be exercised in the preliminary handling of roots of teeth. It is one place where I always fear to set up the inflammation that I have spoken of and described as "volcanic." No one can foretell the size of the excavation beyond the apex of the root, because it is impossible for him to see it. But in going through the dissecting room, as I have done a good many times, where the heads of subjects are being dissected, I found a great many excavations of that kind, and I was astonished at the size and the irregularity of such caverns. In looking over the skulls that are in the Peabody Museum, I found a great many cases where the Indians and Peruvians must have suffered from blind abscesses, and from a not too hasty, but somewhat critical examination of these skulls and those in the Army Medical Museum, I came to the conclusion that it was rather a risky procedure to fill the roots of all such teeth immediately, even though dryness were secured, from the probable future distress that the patients would have to endure. That is one of the class of pulpless teeth that I should think required great discrimination in handling; and the ones with the actual blind abscesses and the actual pouches beyond the apices of roots must be disassociated from those where there is encystment of the root. I think the dental profession is rapidly growing to that degree of knowledge where they can take the necessary precautions to assure themselves that all pulpless teeth without fistulous outlets do not have a blind abscess beyond the apex of the root.

With reference to the final and concluding portion, it seems what I have to say with regard to any preparatory treatment is that my idea of root filling is something like this: that it should be something that would fill the root in the best possible manner, that it should not depend upon the incorporation of any drug of any kind to assure its permanency, that it is not a necessity if the root is ready to be filled to have a root filling that possesses any antiseptic or disinfectant properties. If it thoroughly and mechanically fills the roots that is all that is required. Abscesses should be cured before the roots are filled, especially blind abscesses.

Dr. G. V. Black, Jacksonville: I will say but a few words. There are two things necessary before any root is filled whatever may be the conditions. One is that it is mechanically clean, the other, that it be surgically clean. When this is accomplished generally the root may be safely filled. We cannot have a root surgically clean so long as pus is drooling into it at one end, therefore it cannot be ready to fill with safety to the patient. There is just one difficulty in the handling of this matter, in talking about it, and in giving rules. It is true that a very large majority of the cases with which we meet may be so clean and so handled as to make fillings at once safely, that is, such fillings do well. While this large majority do well, there are continually coming into our hands those cases that will not do well, but will give rise to those eruptions of which Dr. Harlan has spoken. Now, evidence of skill in the dentist is not a success with those large majorities especially, but it is his success with that minority which will give trouble to the patient if not very skillfully handled.

Dr. Edmund Noyes, Chicago: When we have pulpless teeth in our hands to treat, we have a condition of disease, and it seems to me that it is a pretty good general rule to see the disease cured before we finish the work and dismiss the patient. That is a proper basis upon which to argue the question of immediate root filling.

In regard to three or four of the first conditions, the question of immediate root filling is ordinarily not one of practicability, but of convenience, of safety, of the procedure which will be followed most certainly by comfort after the operation, and when a living pulp has been killed and extirpated, about the only objections to immediate root filling are the questions of subsequent exudations which might give rise to some peridental inflammation if denied a free outlet, and what is of quite as much importance, the question of the painfulness of the operation at the time. My own experience has been that roots at that time are often painful under the introduction of a filling which would not be so a week later, and the question of comfort during the performance of the operation comes in. It is not a question essentially of the success and possibility of the operation, but it relates to convenience, practicability and comfort.

In regard to the case of an abscess with a fistulous opening, it seems to me that if the interior of the tooth has been taken care of thoroughly, as Dr. Harlan has suggested, that then the question of further delay in the root filling, relates chiefly to the access for treatment of the abscess cavity. Sometimes it can be managed more thoroughly and conveniently through the root canal, sometimes it cannot. After a thorough disinfection of the tooth, its canal, and the tubuli of the dentine, then the question is one of convenience and perhaps of necessity relating to the treatment.

In discussing blind abscesses, I noticed that the essayist did not make a very sharply defined distinction between the cases which Dr. Harlan spoke of as encysted, in which the decomposition of the pulp has been slow and the pulp canals are found empty, dry and odorless, the other condition in which the pus present is derived only from a suppurating pulp, and those in which the pus comes from an abscess in the apical space, discharging, if at all, through the root canal of the tooth. The last of the three is the only one that can be called a blind abscess. The treatment in these varying conditions will be as different as the conditions themselves. Just here, I will say, it seems to me that the assumption that the first case; of encysted roots in which the pulp canals are often empty, dry and odorless, can hardly be spoken of as cases in which decomposition of the pulp has been attended by the formation of sulphureted hydrogen. When such a condition is found it is in a tooth not decayed, or one in which the pulp-chamber is not opened. Decomposition of the pulp in such cases is not dependent upon putrefaction. It must be much slower, for it has often taken place without any appreciable disturbance of any sort. It is probable that it has taken place without the agency of microorganisms; at any rate, the nature of the destruction and the agencies that have produced it, must be different from what they are when the pulp dies from exposure and goes through the ordinary course of putrefaction. If there is a blind abscess and the destruction of tissue and formation of pus considerable, as is the case in numerous instances, the only outlet for the abscess being through the root canal, we must either leave it open for our medicinal treatment, or make another through the gum and alveolus, or close the root with the probability that there will be the volcanic eruption spoken of, and the formation of a fistula by nature's effort. A great many of these cases can be treated by means of diffusible, noncoagulant agents so as to heal without any serious disturbance, which would surely take place if they were filled at once.

Dr. GEO. D. SITHERWOOD, Bloomington: I had the pleasure of hearing the essayist advocate some of the same views at the International Medical Congress in Washington City, in 1887. I was at that time more of an advocate of immediate root filling in my own practice than I am at present. I cannot agree with the essayist in the third proposition which relates to blind abscess. Dr. Harlan has so well expressed my own views with reference to those conditions that I will not repeat them. I heartily coincide with his views as stated.

Dr. Black has said that the root canals must be surgically and mechanically clean. The length of time that it takes in everyday practice in many of these cases to get the root canal thoroughly cleansed mechanically and surgically is in very many cases impracticable unless you could throw sunshine into them for a couple of hours. It is therefore better to take more time and use such agents as peroxide of hydrogen and eucalyptol, to get the canal thoroughly cleansed. Five or six years ago when I advocated immediate root filling, I had a few cases in my own practice of "volcanic eruption," which convinced me that there was a better and more scientific method. I do not advocate immediate root filling in cases of the kind referred to.

Dr. I. P. WILSON, Burlington, Iowa: I was deeply interested in the reading of the paper. It is a very commonsense production, and the few points that arose in my mind while the paper was being read have already been dwelt upon by other speakers, so that I shall say but a few words. I am in perfect harmony with most of the views expressed by the essayist, and have been congratulating myself and the profession that there is so much unison in our methods of treatment. It indicates that our practice is successful and scientific. I must say, however, that I am not at all prepared to regard with favor Dr. Cravens' recommendation to simply cleanse and dry root canals thoroughly, and then fill without any medicinal treatment. I believe that drugs are used too freely in the treatment of root canals but I am not prepared to entirely abandon their use.

Dr. L. C. INGERSOLL, Keokuk: In entering into an intelligent discussion of this subject a few facts must be kept constantly in mind. The first great fact is that of disease. The next point is that the cure of disease is in nature—the *vis medicatrix naturæ.* Take the case of a putrescent pulp. The disease is not in the putrescent matter. That is dead matter and gone; disease occurs where that matter comes in contact with the living tissues. So by the removal of the putrescent matter you have not cured the disease. In the case of a living pulp which the dentist decides to extirpate, by the act of extirpation of the pulp, at the point of separation of the living tissue there is created a disease by the wound. Extraction of a tooth may cure the disease of the pulp, but another disease is created by the wound. So in extirpating a pulp a cure implies healing of the wound created by the act of extirpation. Immediate root filling may present the proper treatment. There is a very delicate question beyond that. To what extent can we rely upon nature in accomplishing a perfect cure? That is a very important and delicate question, and I do not know that it can ever be decided. When you use the word "cure," it is very indefinite. Did anybody ever get cured of a disease? There is an old maxim in surgery that "once a lesion always a lesion." The fact that probably every man in this room is carrying about in his body an organic disease of some form, ready at any moment to spring into activity is evidence that we do not have many *cures* of disease. The fact that so many teeth are treated according to rules of science and yet remain sensitive and troublesome at times is evidence that they were not thoroughly cured. It is true that relief is afforded, but that is all you can say of it. Those who have heard me talk on this subject for the last ten or fifteen years know that I have not much faith in immediate root filling in the class of cases referred to. I do not believe in such a thing as mechanically extirpating a pulp. I do not think it can be done. You can extirpate or remove portions of the body of the pulp, but the pulp, the processes in the dentine are there yet. Whatever method one may practice, in the remaining portion of it there is a wound, great or small, created. It must be healed. If it is thoroughly healed you have a perfectly sound tooth possibly, and yet when I use the word "perfectly," there is very little of it. Allowance must still be made for imperfection. Relief is afforded, and the patient may get along well with it. After all there is a little twinge occasionally which reminds a patient that it is not a perfect tooth. There is no possibility of extirpating pulp fibrillæ mechanically and no possible way of filling a root immediately without more or less danger of serious consequences beyond. The most thorough method of extirpating a pulp, fibrils and all, is to allow the dead matter to decompose. This takes time. If you close it up in the tubuli of the dentine it will cause sensitiveness of the peridental membrane. If the dead organic matter remains in contact with living tissue it is a source of irritation. If it is allowed to decompose and pass off in gases, you *may* then *possibly* enter the tubuli with some of the attenuated substances which we use, such as wax, paraffine, gutta-percha, or something else, yet it is an extremely doubtful thing. Atmospheric air enters the tubuli when the pulp fibers vacate. If air goes into the tubules of the dentine I believe it is a doubtful thing whether wax or anything else can be forced in. You talk of *how* you do it, but we want something more than words to force it in there. I doubt if there is any such thing as filling the tubuli of dentine. I have not much confidence in the statements of any man who says he has done it. When I consider the facts of chemistry and that everything must harmonize with them, I cannot make out the harmony. I wish I knew *how* to fill the tubuli of dentine permanently. A man may think he does it and say it over and over again. I presume there are as many as fifty different kinds of preparations used for filling the roots of teeth, yet the profession is not agreed on any of them. If there is anything certain about any one preparation, we ought to agree on it and follow it. I do not know of anything better than to do the best we can and trust to nature to do the rest, but how far I do not know.

The word "mummifying" ought to have been abandoned years and years ago. There is no such thing as mummifying a pulp. You may mummify a ham, but how soon will you have decomposition. In regard to the tissues, they may be mummified for the present, if nature gets rid of the decomposing elements there may be comfort for a number of years. Some dead pulps are never extracted, and yet never give any serious trouble to the patient. I look upon immediate root filling as blocking all the chances I have of after treatment. If my case is one in which I have little doubt concerning the fact of thorough extirpation and wish to introduce a medicament, if I plug that root up I cannot effect a cure after that. I might enter it externally, but that is uncertain. The only certain mode of entrance is through the root canal.

Dr. Cravens (closing discussion): I think that some of the gentlemen did not understand exactly what I meant when I said that before removing a pulp that has been devitalized, I prefer to wait for incipient putrescence. I hope they will not labor under the impression that I think there is any particular virtue in putrescence, even in the incipient stage. When a pulp dies, I have noted as a first effect that circulation within the pulp ceases; there is no hæmorrhage; the vascular system within the pulp is apparently dead. Even after this has taken place I have observed that the nerve fibrils in the pulp retain their sensibility too much to be comfortable to the patient in removal of the pulp at that time; even if stasis has reduced the pulp tissue to the condition of beefsteak, the annoying sensibility will continue. I believe that as soon as incipient putrescence prevails, the nerve fibers in the pulp lose their sensibility; and that until incipient putrescence prevails sensibility of pulp will also prevail. That being my idea I prefer to wait until there is incipient putrescence before attempting removal of a pulp.

Usually, a blind abscess will be able to discharge its store of pus through the pulp canal; we know that the canal is constricted at the apex, but not always to a minute caliber, the amount of drainage that takes place through it is necessarily small. Probably it would amount to nothing if no pressure were behind it; when that pressure is removed the drainage will stop. I think that if a blind abscess is able to discharge all of its pus through the pulp canal, it must be a very small abscess, and the amount of pus production is minimum; the abatement of the cause in the canal will stop the formation of pus.

If I correctly understand the substance or sense of a paper written by Dr. Miller of Berlin, and published in the *Dental Cosmos* sometime during last year, he speaks of a cemental lining of pulp canals. The subject of that paper was revamped by Dr. Barrett in the *Advertiser and Practitioner*, in a commentary in which

Dr. Barrett took the ground that whatever might be said by Dr. Miller upon that or any other subject must be accepted as correct. Dr. Miller said in substance that the organic contents of the tubuli, after the pulp dies, become mummified, notwithstanding Dr. Ingersoll says there is no such thing as mummification. Dr. Miller said it is the best possible condition for the tubuli to be occupied by the mummified fibrils. I am not defending Dr. Miller's position at all, I am quoting it. It is better to let the mummified matter alone; anything that chemical agents could do would not improve this or remove it. Dr. Miller insists that the cemental lining of the pulp canal practically closes up the mouths of the tubuli, so that they are not penetrable by medicinal agents. However we know that sections of dentine can be colored for microscopical investigation.

In regard to Dr. Black's minority; he has divided immediate root filling cases into majority and minority, admitting that the large majority are successful, as I understood him; he has my thanks for the admission. He did not state what the majority is, consequently we do not know what the minority is; close observation for twelve years leads me to estimate the minority at ten per cent. There is no political party under the sun that cares a rap for a minority that represents only ten per cent.

Dr. Noyes said that there is disease there if there is death of the pulp, and that something must be cured. Very good. If the pulp has been removed, the corpse has been carried out. If the patient is dead is he diseased?

Dr. Harlan: You would have to disinfect the room, then.

Dr. Cravens: (continuing) In regard to gases penetrating the tubuli after death of the pulp and the canal is subsequently filled, and later there is a lengthening of the tooth, as mentioned by Dr. Harlan, I suppose he refers to pericementitis. If the gas has entered the tubuli, and subsequently the canal has been adequately filled, it seems to me that the gas has been effectually imprisoned within the tubuli; I am at a loss to understand how the imprisoned gas within the tubuli can later produce pericementitis, or the inflammation that is manifested by the apparent lengthening of the tooth.

When Dr. Sitherwood began his remarks I thought I had found a convert. I am sorry he has retrograded so far since 1887.

Dr. Ingersoll's remarks remind me of the old adage that "An honest confession is good for the soul." The gentleman insisted upon the treatment of the canal for conditions that I cannot conceive to exist—a supposed condition beyond the root perhaps, or, as he said, within the apical constriction or attenuated part of the root—that could not be cured. If it cannot be cured, why should we waste our time trying to cure it? It reminds me of a song I used to hear thirty years ago. The poet, in addressing his friend and telling him about a recent visit to the scenes of their boyhood, their early homes, the old schoolhouse, and lastly the ancient church where they used to go to sleep every Sunday, says:

"The same old bricks are in the walls,
The bell swings to and fro;
And the music 's just the same, dear Tom,
'Twas twenty years ago."

DISCUSSION ON THE REPORT OF THE COMMITTEE ON DENTAL SCIENCE AND LITERATURE.

Dr. W. A. STEVENS, Chicago: I cannot see that there is anything in *Catching's Compendium* that it should deserve so high a recommendation in the report of the committee. My reasons are (1) that 95 per cent of the articles contained in it are valueless. As a matter of necessity, the author is compelled to leave out a great many of the articles that are valuable and would be to the book if published therein (but those articles are copyrighted). I take nearly all the leading dental journals, and by the time I read them I have obtained much more information than can be found in *Catching's Compendium.* I do not like the manner in which the *Compendium* is published. You are buying a "pig in the yoke," so to speak. You do not know what you are paying for until you get the book. It contains the opinion and judgment of one man. I believe that a great many of the books that are published in this manner never come up to the standard of the prospectus. They are essentially different.

Dr. C. N. JOHNSON: Dr. Noyes has said that the *Compendium* is made up of articles taken from our dental journals, and that if the *Compendium* is weak it is because the journals are weak. I want to carry the responsibility one step further. If the dental journals are weak, it is the fault of the profession. If the profession will not write for the dental journals they cannot publish creditable articles.

HANS BLOCK, Chicago: I wish to make a few remarks in regard to Dr. Ottolengui's book, which has been referred to by the committee. I have stated in my article, which appears in *The Dental Cosmos*, that the book is invaluable. For the same periodical, however, Dr. Ottolengui's remarks in regard to plastic fillings are severely criticised, and very properly; but the merit of the book lies in his method of making cohesive gold fillings, because it contains the fundamental laws of making such fillings. His instructions with regard to the internal arrangement of cavities are the best I have ever seen. But strange to say, the gentleman who criticised Dr. Ottolengui's book said he had the keenness to give other instructions than Dr. Flagg had given on plastic fillings. Dr. Flagg is no doubt the highest authority on plastics, but that is no reason to blame Dr. Ottolengui because he "placed himself beyond highest authority." What does highest authority mean? I take it, that highest authority is any person whose work is highly esteemed on account of its merits, and the experience and ability of the man. It does not mean that another person is to be prevented from pushing his inquiries further, or to be original in his researches, as authorities are not saints.

With regard to the opportunity of giving dentists a review of dental literature, I will say that I do not think a compendium or any one monthly journal is the best medium for doing this. It would be better if the list of original communications appearing in the leading dental periodicals were published in a weekly dental journal, such as *The Dental Tribune*, edited by Dr. Ottofy, then dentists could select such articles from time to time as they desired for their edification.

The committee in its report mentioned that surgeons were doing away with bichloride of mercury. It should be hoped that surgeons will do away with more than bichloride of mercury. In the medical colleges there is by far too much fondness for curing diseases by means of surgical operations, although they can be cured much better, less painfully, and with less danger to the patient by other methods. It is strange to listen to the lectures of professors of surgery, who are perhaps unacquainted with other methods, and hear them say that such and such diseases can only be cured by the application of the knife. It is a great mistake.

Surgery is losing friends daily. While in Europe, I saw students going to sanitariums where diseases were treated other than by surgical measures. I allude to the method of cure by water. Water can cure by far more people than perhaps any member in this hall would expect. Water is able to create a centrifugal power and aids in the elimination from the body of effete material. No surgeon can ever make such an opening as is made by nature when supported by water. In this way, I often think that though such small operations as are done by dentists on structures of low vitality are indispensable yet the therapy of all oral diseases of inflammatory character may be materially aided by water treatment. For instance, if we wish to get rid of effete material in a root canal, it would be a good method to introduce something, such as linen fibers soaked with water, which creates a centrifugal power and helps to remove it. It would then be cleaned. A root canal cannot become clean by introducing drugs and leaving behind effete material. Sterilization is not so perfect in the removal of such material as the centrifugal power created by the proper application of water.

Dr. STEELE, Forest City, Iowa: I do not think that many of our professional brethren realize how much work it is to furnish the profession such a work as Dr. *Catching's Compendium*, and have the work contain only such matter as will be useful to, and equally acceptible to every individual reader.

The old adage "that what is one man's meat is another's poison,'' is very applicable here. I have had a little experience in this line myself, and while I have received but few criticisms on my book, those I have received are very valuable, as they will be guideposts along the line of future work in this field. With all due deference for what has been said by the worthy gentleman who has just spoken, we should bear with the faults and points just mentioned, as I assure you, one who has not carried through a work of this kind can have but faint idea about the amount of work required to gather up the material and boil it down in order to put it in readable shape, for a book of this kind.

Dr. A. W. HARLAN, Chicago: The object of a compendium, such as Catching's, is to select such matter as will be appreciated by members of the profession who do not take all the journals, and who may not be able to take them. The criticism of a compendium as a repository or bibliography is not just, because a compendium does not pretend to be a bibliography. The work that Dr. Catching has done is patterned after the work of Sajous' Annual of the Universal Medical Sciences. It comes out every year in several volumes, while Catching's Compendium is compressed into a single volume. He publishes what he considers to be the most salient and necessary things for busy dentists who do not read very much, and in that sense I think he accomplishes what he sets out to do.

With reference to Ottolengui's book, the few lines that were said about it were neither derogatory to it nor particularly commendatory, because it was stated that it was the experience of a single man following a single line of practice. It is not a work on operative dentistry. No flight of the imagination could cause any one to call it a work on operative dentistry. It has the details of a single method of practice, and while there are many good things in it and it is well illustrated, and it is intended to be read by those whose primary knowledge has already been acquired. It is not a book for teaching; it is a book for a man to read and weigh and discriminate the good from the bad.

With reference to the use of water, I understand perfectly well that water has a great future before it, and its use in medicine is growing. There was a senseless antipathy to water brought up a good many years ago in medicine, because those who made use of it were not educated physicians, scientists, or savants; but to-day in Germany, France, and in the United States a more intelligent appreciation of the properties of water as a remedial agent is beginning to be felt, and the book of Baruch on "The Modern Uses of Water" is one of the best in the English language. I recommend any one here, who wishes to know something about water, to purchase that book. It costs a dollar. It is true that water, when sterilized, has a place in dental surgery. Just what particular form of water should be used is a question yet to be determined. It is much better to get rid of effete matters with water, perhaps, than it is to burn them up, but many times you cannot get rid of them and you cannot burn them. What are you going to do? You must sterilize them, desiccate them, and then displace them.

A word with reference to the general report of the Committee and I have done. I thought two years ago that the Committee should be abolished, and I think now that there is great room for improvement in the report of the Committee. I have been on the

Committee for two years, and I know how difficult it is to select the kind of pabulum that ought to be presented to an audience like this. It would be better to have a Committee of one and make that one responsible for the whole report. The Committee has followed the plan of dividing the work in the last two years and giving each member individual credit for what he did. That hampers the members of the Committee. They are apt to intertwine, overlap and conflict, and for fear of doing that they do not lay out the full range of their possibilities, so they do not epitomize, condense and present that which should be given.

DISCUSSION ON THE REPORT OF THE SUPERVISOR OF CLINICS.

Dr. W. T. Magill, Rock Island: There was a report made of one filling that was done in 1873. I think if the filling is in good condition at this day with a slight discoloration along the cervical margin, we may consider the operation successful. Where we find many fillings of that kind, we will find many more that will not stand that length of time.

Dr. Prichett: The supervisor in the case of the clinic given by Dr. Stevens says that had the cavity been cut away more, it would have been a better operation. I would like to ask upon what grounds he makes the criticism.

Dr. E. A. Royce, Chicago: The operation done by Dr. Stevens was for the demonstration of certain points, and in my opinion every clinic should be criticised upon that basis, and not upon general principles of the filling. If a man comes here to show a certain mallet or some other thing, the mallet should be criticised and not the operation upon general principles. If a man is to demonstrate the use of a mallet or of any appliance he should demonstrate it in the most thorough manner possible for that instrument. In the first place, to successfully fill a proximal cavity in almost every case the walls should be cut back so that the union or joint between the gold and the enamel can clear the lodgment of food entirely, leaving the knuckling portion free and clear of gold. In the second place, in the use of mechanical mallets of all kinds there is little advantage gained by using it as an automatic mallet. I doubt if there is one man in twenty in the profession who understands the philosophy of using it. They use it as they would hand pressure. Therefore the criticism was upon the manner of using the mallet and the manner of cutting the cavity with it.

Dr. STEVENS: The criticism is not as bad as I expected it would be. You will remember the anecdote of Abraham Lincoln and Stanton, that every man has his peculiarity, and so I have mine in the method of using the mallet. I would not under any consideration fill teeth in the manner in which Dr. Royce described with a mechanical mallet. I have used the mechanical mallet for twenty-six years. I do not believe that a man is justified in any measure in sacrificing solid dentine or enamel for the sake of replacing with gold for the exhibition of any instrument. I should consider I had done the patient under my care a moral injustice if I had cut away more of the enamel and dentine and replaced it with gold, because when I gain a firm, solid basis, the margins being firm and solid, having a direct opening of the cavity to its base, and in proper shape to retain the filling material, I have demonstrated the usefulness of the instrument, more clearly than I could have done had I destroyed more of the tooth substance to have given the instrument a better play.

DO GOLD FILLINGS OF THE PRESENT DAY PRESERVE THE TEETH BETTER THAN THOSE MADE FORTY YEARS AGO.

DR. GEO. H. CUSHING: I presume if Dr. Allport were here he would answer the question in the affirmative. There is no question that the *general* operations made forty years ago with noncohesive gold were more successful in the teeth than the *general* operations that are made to-day with cohesive gold. But we must remember that the teeth that are filled to-day are very different in character from those that were attempted to be filled forty years ago with noncohesive gold. The introduction of cohesive gold made possible operations that were impossible with noncohesive gold, and it introduced a method of practice that brought to bear certain strains upon the teeth which were not, and even to-day are not, realized by the general practitioner. The amount of force that is applied in the use of the mallet is very rarely justly estimated by the operator. Too often it is excessive even in the hands of careful men. The method of hand pressure gives greater security in packing gold over attentuated margins or over margins that are inclined to crumble under pressure, so that I think it may be said that the average of teeth that were filled with noncohesive gold forty years ago were more generally protected by the average operator than the average of teeth filled to-day with cohesive gold are. Dr. Allport was always a very earnest advocate of the use of noncohesive gold in combination with cohesive gold. Even where cohesive gold was used in the latter part of an operation, he was a strong advocate for the use of noncohesive gold at the cervical borders and for the borders generally that were thin or fragile. I feel quite as earnestly about that as he did. It is the better and safer plan, and if more generally adopted there would be fewer failures of fillings at cervical margins.

Dr. Black: I do not feel like trying to remember things that occurred fifty or sixty years ago. I do not believe I filled many teeth at that time. (Laughter.) However, I did fill teeth before cohesive gold came into general use, and know something of the methods that were employed and something of the results obtained. There is no question about the value of noncohesive gold, and I think Dr. Cushing will agree with me. There are few operators now who handle noncohesive gold as we used to handle it in those days; even though they may use it they use it in a different manner entirely. I agree with Dr. Cushing entirely in the usefulness of noncohesive gold upon margins of a considerable bulk of carious teeth that are filled. But there is another element in this matter.

Comparatively few cases we undertake to-day were undertaken in those days. Teeth were extracted that we would now fill. Mouths were mutilated in those days where we would preserve them intact to-day, and not by the poorer class of operators either. We could not undertake contour fillings. The treatment of pulps had not advanced, and the cleansing of root canals had not advanced to that perfection it has to-day. All of these thidgs should be taken into consideration in any estimate that is made of the subject. In the teeth we filled with noncohesive gold in those days we did not build up contours.

Slight contouring was done certainly, but not enough to be regarded as general contouring. With regard to the old fillings that have stood thirty and forty years, I will say that I can now find some of Dr. Harris' fillings that have been in about sixty years. There were several families of his patients who have come into my hands with fillings that he made, but those fillings are generally small ones. The mouths were apparently carefully watched and the conditions favorable. I have no doubt that forty, fifty and sixty years from now we will find under similar conditions our fillings of to-day standing good and perfect, the same as we now find those of the older men that have passed away, standing good and perfect. Fillings that are surrounded by favorable conditions will stand, and I may say right here that one of the greatest studies that we have to make in the future is to obtain these favorable conditions and perpetuate them. We now fail to do so.

Dr. Harlan: I have never felt like discussing a subject so much as I do just now. When I think of the ghastly looking mouths with wide V spaces, and the amount of suffering and inconvenience that people had to endure in consequence of having the old-fashioned fillings of forty or fifty years ago, and think of the comfort they now have; it is worth while for any patient to undergo the filling of his teeth three times in forty years for the sake of the satisfaction during that number of years in having these spaces closed up. It does not make any difference if we do see three or four, or more fillings, that have lasted forty years, the dentistry of to-day is so far in advance of what it was forty years ago that this is not to be thought of. It is perfectly easy to fill a little cavity on the side of a tooth with noncohesive or cohesive gold and have it stay if the person remains in good health for a great many years. There is no great degree of merit in having a filling of that kind last forty years. When a filling will last for twenty years, as has the one that was referred to to-night, and made by Dr. Cushing, and the patient has used it all this time comfortably, that is something approaching the results that modern dentistry can accomplish. The peg shaped, V shaped, horrible teeth that many mouths present is frightful to contemplate. There are a number of people who had their teeth filled fifty, fifty-five and sixty years ago in the interior of New York, between Albany and Buffalo, where you can run your finger in between them in many cases. It destroys their expression. They have gone along through life absolutely deformed in consequence of the necessities for making teeth in that shape in order to have them retain fillings. Every doubtful tooth was extracted, and a good many salvable teeth were extracted, that in the hands of better men would not have been. Therefore, the civilization of the present is to be congratulated that dentistry has been able to reach a degree of perfection that will make people comfortable while masticating their food.

Dr. C. N. Johnson: I think it would be presumption on my part to compare the work of forty years ago with that of to-day, because I know nothing about the work of forty years ago except what I see and hear in regard to it. The reason I got on my feet is this: The last discussion that Dr. Allport took part in before any dental society was before the Chicago Dental Society when this matter was brought up. I do not think I ever came more in conflict with a man's arguments in my life than I did in that discussion, and I want to say some things that I said then. At that meeting Dr. Allport made the remark that he did not see so many of the fillings in these days still standing and doing good service as those that were made forty or more years ago. He claimed that the methods used in those days were superior to those used to-day. I cannot agree with that in any particular. I take it as no argument that because we see teeth to-day that were filled forty years ago that the work was better done then than it is to-day. We have no record of their failures.

Dr. Black: I have seen lots of them.

Dr. Johnson: We have simply a record of their successes. As Dr. Black has said, forty or fifty years from now there will be a larger percentage of our fillings seen than we see of the fillings put in forty or fifty years ago. If I did not believe that I should consider myself a failure. It is simply a question as to whether or not we are advancing. That we are progressing cannot be denied. We are more scientific and more mechanical than ever before, and within the last few years we have developed wonderfully. When I was a student I was not taught the proper principles of the preparation of cavities. It seems to me we are doing work to-day which will stand the test of time just as well as the work done forty or fifty years ago. I have seen many amalgam fillings that have saved teeth for a very long time, as long in some cases as gold, so that it is no proof because we find gold fillings lasting such a long time that it is due to the class of work done at that time, or that it is better than we are doing to-day. If we compare past with present methods we have reason for encouragement.

Dr. Kulp: I suggested this subject to Dr. Allport for discussion because I knew his hobby. I have known him fora great many years, and I learned a great many valuable lessons because of his hobby. I make this remark, that our success of to-day in filling teeth will largely depend upon the nearness of our methods to those of forty years ago; that is to say, if we line our cavities with non-cohesive (soft) foil, we can build out as much as we please, and still save the teeth. If we have the material to contour and build out better than they had, so much are we ahead of them, and our work can be better than theirs was. I firmly believe that our success largely depends upon covering the walls of the cavity with soft gold. I have gone through the cohesive gold experimentation thoroughly. I see fillings often, put in thirty years ago that are still good. I put them there in the old fashioned way with noncohesive gold. If I had had the material to contour them at that time, I believe they would be perfect now. As it is, they are saving the teeth. The class of fillings that preserved the teeth forty years ago were principally in cavities on the grinding surfaces of molars. Every once in a while I come across one of them put in forty years ago. I believe that Dr. Allport, covered the walls of cavities with *soft foil always*, contouring with annealed soft foil, and has as good record for saving natural teeth as any one in the profession. A monument to his memory.

Dr. Royce: In regard to the filling of Dr. Cushing's which was inspected to-day, it was in perfect condition except a slight disintegration of the cervical margin.

In regard to the percentage of teeth that are preserved by filling; supposing five per cent of the old time fillings preserved the teeth forty years ago and only one per cent of our fillings of to-day remain in that length of time, are we not doing better work now than formerly, because we are filling a larger number of teeth of poor structure.

We can hardly make a fair comparison between the successful operations of forty years ago and those of to-day unless we take into consideration the quality of tooth substance.

In regard to the use of cohesive and noncohesive gold, I believe that cohesiveness or noncohesiveness has nothing whatever to do with preserving teeth, but it is that quality of the gold which allows the operator to pack it perfectly against the walls of the cavity that insures the preservation of tooth substance. I have been conducting a series of experiments which have proven to me that it is upon the spreading quality of gold that we must depend principally for the preservation of teeth. I hope I will be able to demonstrate this in the near future.

Dr. Cushing: I seem to have been slightly misunderstood in regard to advocating noncohesive gold in preference to cohesive gold for everything. I want to say further that I agree fully with what has been said about the greater number of teeth that are preserved to-day. I stated that the class of teeth filled a great many years ago was intirely different from the class of teeth we operate on to-day, and this should be taken into consideration. I meant to make it plain that I thought teeth filled in the manner that was pursued forty years ago with noncohesive gold protected the teeth more generally than the fillings that are put in to-day, because of the difference and character of the cavities and the fact that noncohesive gold is more easily packed toward the walls than cohesive gold is, not that cohesive gold cannot be packed there, for I contend it can be as perfectly packed in such a place as ever noncohesive gold was. But it has got to be done by a master hand. Dr. Allport's theories were different from his practice. As he talked to us in societies we gathered the impression that he used nothing but noncohesive gold. He used very little noncohesive gold practically. He annealed very much of the gold he used, and while I think he used noncohesive gold at the cervical margins perhaps exclusively, in the main part of the operation he used cohesive gold. I do not want to be misunderstood as thinking that the operations of forty years ago were more successful in the sense that has been stated by the preceding speakers. I merely stated that in the class of cavities which were more favorable and the conditions more favorable, noncohesive gold was used; that the chances for the average operator properly packing noncohesive gold against the walls of the cavity are greater than where cohesive gold is used. I think anybody with any observation will know that to be true.

Dr. C. N. Johnson: I agree with Dr. Cushing that Dr. Allport conveyed the impression when speaking before societies, that he used noncohesive gold almost exclusively. When I first came to Chicago I saw him operate. I had known him by reputation as a man who used noncohesive gold, but about the first thing I saw him do was to put the gold through the flame of a lamp. Shortly after the discussion I have mentioned before the Chicago Dental Society, in walking along the street with him, I said to him that I had been under the impression that he used noncohesive gold, and he said he used cohesive gold as much as he did the former. I told him that he did not tell the profession so, and that the profession had the impression that he used noncohesive gold exclusively. He said he seldom filled a cavity without using a great deal of cohesive gold.

Before I sit down I want to pay a tribute to his ability as an operator. I do not believe his peer has ever existed in the profession. I had in my office a patient shortly after his death for whom he put in a filling two weeks before his illness, when he was weak and not in a condition to stand at his chair. It was an extremely difficult filling to insert, but it was so perfectly done that it will stand as a monument to his ability, if the patient lives, longer than any of the fillings that were put in forty or fifty years ago. (Applause.)

Dr. BLACK: We need a clear, concise statement of the manner of using noncohesive gold in connection with cohesive gold. So far as I know, there is not a clean-cut statement in the literature of the profession as to the means of using soft gold in connection with cohesive gold, such as Dr. Allport employed and others. The statements I see are imperfect, and certainly are not such as will enable the student or younger men coming into practice to use soft gold as it ought to be used. I hope within the next year we will get some paper upon the subject that will put this definitely, concisely and properly. It is a matter that must be pursued upon different plans. There may be a number of plans, but the plan should be definite. I hope this will be done so that the statements can be carried out and utilized by every one.

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EDITOR: A. W. HARLAN, M. D., D. D. S.

ASSOCIATE EDITORS:

C. N. JOHNSON, L. D. S., D. D. S. T. L. GILMER, M. D., D. D. S.

RECOGNITION WITHDRAWN.

The general medical council of Great Britain has suspended the recognition of American dental diplomas from the following colleges:

"That the recognition of the certificates of the degrees of Doctor of Dental Medicine of the University of Harvard, and Doctor of Dental Surgery of the University of Michigan by the General Council be suspended until further notice, and that the Registrar be instructed to refuse registration of such certificates."

A desire was expressed by some of the members of the council to permit the colleges in question to answer interrogatories as to the lengthening of their courses of instruction. This was held in reserve. We presume that the possessor of an English, Irish, or Scottish L. D. S. will be permitted to exercise his rights to practice without question in the United States as usual. As to the actual acquirements of the possessor of an L. D. S., or D. D. S., we do not care to express an opinion. The fact that an *apprentissage* of eighteen months can be taken out of the four years required for the L. D S'. examination may, we think, somewhat lessen the monumental knowledge of the English student when pitted against the American's three years. The question of the hour is not what the medical council has done, but when will insular prejudice arrest itself long enough to cast its eyes over the face of the earth and find something good enough, or sufficiently well educated to associate with.

What is Wrong?

Can any one arise in his wisdom and tell us why it is that of late, local societies—we had almost left out the word local—are not attended better than they are? It may be admitted that in the nature of things societies never call out anything like their full membership at each meeting. This of course is to be expected. Circumstances are often such as to give certain members a legitimate excuse for nonattendance. Illness or other incapacity often keep men away.

But recently it would seem that there is an unusual lack of interest in society work. The attendance, especially at societies holding monthly meetings, is ridiculously small in porportion to the membership. This at least is true of Chicago, and we hear that the complaint is almost universal. Why is this? One reason in Chicago is, probably, that members are absenting themselves for the mistaken purpose of conserving their energy for the coming congress. We say mistaken, because we do not believe that this is the proper way to conserve energy. A man will work to better advantage in a national or international organization if he works faithfully in a local one. A dentist would better keep in touch with society work all along the line. There is no man in the profession to-day but who owes more to societies than he ever individually gave to them. There is no man so well informed that he cannot learn something from every society.

Why do men stay away? Is it laziness or weariness, warm weather or selfishness, or is it sometimes petty disputes and jealousies? Mayhap something of each. Is any one a legitimate cause, do you think? We hardly believe so. Men owe a duty in these matters that they sometimes fail to recognize. A man should not be a drone in this hive of the nineteenth century. He should not be a leech on his profession any more than on society at large.

Some few there are it is true who attend societies at any sacrifice. They are the faithful minority who are always seen at the meetings taking an active interest in society work, and to whom all honor is due for their devotion. But the few should not be asked to do it all and the appropriate, though emphatic language of a Major in the British army is true that: "It's devilish hard to make a decent fight when most of the regiment are in the dumps and no one seems to know the reason."

It is probably too late in view of the summer adjournment to stir up much enthusiasm at present, but when the different societies are called to order in the autumn we hope to see a better attendance and livelier interest. If there is not, then we shall take up this matter again, and if we do we promise a "rattling among the dry bones." C. N. J.

THE DENTAL CONGRESS.

The most important event of the year for dentists of the world is the World's Columbian Dental Congress, which will assemble August 14 to 19, in Chicago. Every progressive man or woman practicing dentistry will be benefited by attending the Congress. From the character of the papers already received, there will be no topic of importance omitted. The clinics and demonstrations will be of the first order, and the social features will appeal to the æsthetic and *bon vivant*. Mark out the date of the opening. Come ahead of the time and stay a week or two after the Congress is over, and do all you can to make it a great success in numbers as well as in the value of the proceedings.

DOMESTIC CORRESPONDENCE.

LETTER FROM NEW YORK.

To the Editor of the Dental Review:

DEAR SIR:—Chicago newspapers—dental—we notice have been advocating "letting down the bars." We say every man under his own vine and fig tree. No man can dictate what other men shall or shall not do, providing that they do what is right. What is right? Ah! that is the question. Organizations can vote the truth down and out but that does not settle it. This subject has an attention in New York and vicinity that is quite mixed. If these ardent advocates would define in what violating the Code of Ethics consists there would be a little more possibility of getting a fair adjustment. There is a supposed violation which is seen in printer's ink, and that is paraded before the societies, but what about that which is not seen, viz., men cliqueing against their fellows to their great injury not only personally but professionally. What about moral character? What about courtesy? And a good many little things which go to make up the amenities of a pleasurable life? We could particularize by giving a recent instance. A good deal of friction has been generated over the management of the Historical Dental Congress to be held in Chicago. At first a strong feeling sprang up over the report going around that only "reputable dentists" would be admitted. Men began to ask "Why such a stating of matters?" They said "Who ever saw anything in the arrangements of the medical profession which has courteously taken us in—like this? They don't do things in that way." So a good deal of froth has come of it. This instance which we relate does not involve gentlemen, but it does show that "All is not gold that glitters." H, a reputable practitioner, well known among us for many years, a graduate both in medicine and dentistry, wished to take some part in the congress and exhibit a valuable contribution, and on inquiry he was directed to the chairman of the proper committee. He was not personally acquainted with him, but knew him by sight. He called and gave his name to the attendant at the door, and was ushered into the parlor of this chairman, who came in. The brother practitioner said, "Doctor, I would like to see you a few moments. The chairman replied, "You cannot see me," and disappeared into his office. He could not be approached. Both these men carry the titles of "M. D." and "D. D. S." One is a gentleman and the other is—what? A good illustration we give, which we have heard occurred in the experience of the late Dr. ———. A demi-mondaine called for his services, and the Doctor did not feel that he could justly refuse to attend to her. At one time she became a little difficult and troublesome and he refused to serve her any further, manifesting not a little displeasure toward her, not meaningly, possibly. It made the woman feel keenly the refusal to serve her further, and on going out of his hallway, she turned upon him and sharply said, "Sir, a gentleman never forgets himself." It cut the doctor to the quick, and he often referred to the matter, saying it was a just rebuke. This stands true for the case cited. This took place within the last three weeks. The practitioner who called was not able to make known his purpose. Such things stand against the management, so far as it goes to create unpleasant rumors. I make this public only for the purpose of letting those in charge understand that there is cause for the unpleasant impressions in circulation. Don't let any one say this is not proved; it can be, readily, and should be for the honor of true ethics.

The "bars" are up so far as the first district society is concerned. June meeting off. Brooklyn dentists have been coming more into notice of late, they are again reported in the *Cosmos.* A society that is set on a Hill cannot be hid, O. E. being President accounts for much of this renewed activity, and a good reporter adds much. No society can expect to amount to anything that has not energy enough to let the calling know what they are doing. It is noted frequently that many of our number have left us. None more talked of than Dr. Allport; with one voice it is said his was a premature taking off, and it is whispered, "Were there flowers put upon his mantle as often as there should have been?" Many of the profession have known and much respected Dr. C. A. Marvin, of Brooklyn, and will all be sorry to learn that his wife has been removed from this mortal existence. She was a lady of refinement and worth. Dr. J. Smith Dodge, Sr. has been a landmark in New York for a great many years, but little seen among his fellow practitioners for the last twenty-five years. He was a genial man. Eighty-seven years was a long time to be looking down people's mouths. It is quite noticeable how many do hold on to daily practice to the end, rarely does one retire—with a competency—this may be the cause too often. Dr. H. G. Mirick, of Brooklyn is an exception; he has gone into genteel retirement and a full purse. He has practiced in Brooklyn fully forty years. He is a Massachusetts Yankee and gentleman, who never forgets himself. It is said that a quart ate is better than a quart drank. This recalls the quartette established by Dr. Bogue in Paris. We hear that Dr. Bogue will remain mostly in New York in the future. Dr. Davenport who has been associated with him for ten years has gone out for himself, and has purchased a house in West 47th Street. He was the honored editor for the Odontological Society for eight years. He is a cousin of Dr. Davenport, in Paris, formerly associatod with Dr. Bogue, an able practitioner and writer as many who read our journals know. Some predicted that Dr. Lenox Curtis would find a barren field for his oral surgical services in New York City, but it does not prove true. The Doctor has come to stay and on his merit; that is the staying quality after all. Merit does not always tell in a successful way but the Doctor has business tact as well as skill. He has established himself in the good opinions of the Fellows of the New York Post-Graduate Medical School, presided over by Dr. St. John Roosa, who knows a good man when he sees one, and this he sees in Dr. Curtis as one of their staff. Unworthy acts have been laid in Dr. Curtis' pathway, but he steps over them; he is "high stepper." The doctor has an ambition to see a post-graduate school in New York for furthering dental practice in the departments which men may be fitted to excel. The doctor gave a paper to the New Jersey Society, so many things are said to emanate from that society it may have been a good starting place for an expression of views. The paper is to be published so it will soon be before the readers of the journals. We think some of the views made known will attract attention and provoke comment. Healthy criticism is always good for a subject. Secret preparations have been not a little discussed, and not a little cussed, both before societies and behind them. It is amusing to note how men will get all in a fume before a body of their fellows over these matters and will extol so highly the dignity of "our profession," and how they too often commit acts so unworthy. Well, secret preparations are before the members of our calling, and more or less they will dabble with them. It is amusing how easy they drop to an experimental use of them and find themselves often duped. But do they find them as represented and useful and humane to their patients. No one but a nobody is going to be lead away from their intelligent use. We say that the best way to be protected against being misled is to put one's good judgment and intelligence into active investigation and follow up the commendations of men who are known as reliable and trustworthy. There is no difficulty in finding out the ingredients of all the preparations by chemical analysis. The method of combining may be a secret, and that is one's right, so held by fair men.

There is a good deal that might be said for and against these preparations, but it is as yet an open question. Prove all things, and hold fast that which we find useful in our hands, and our patients will find out the results. When one sees how thoughtlessly (we hope) brutal some are, we yearn for some kind of an obtundent in their hands at least. How common it is to see an operation by clinic made only in a mechanical way with seemingly not a thought that a human being is in any way interested in the personal comfort of it. The practitioner who does not have the means at hand for minimizing pain is not fit to meet the demands of today's intelligent practice. The public is far more interested in knowing if they can be spared pain, than they are in a crusade against "secret preparations" which they invariably view as a selfish action against a practitioner that may be using them, and the thing they cry down the public gains a larger knowledge where they may find it, and turns toward it. We know of instances where men who would have been obscure but for a crusade against them in the public prints by the vote of societies. They have been enabled to turn to the pages of the journals and show their patients the ads. in them, calling attention to the very articles society had condemned. The public does not discriminate nor care to in such a case. What we write is based upon what we hear voiced outside of society meetings. We have often noticed how differently men talk in dental depots from what they do in orations. This reminds us that these marts are hothouses for cultivating gossip. If any one thinks differently, get the good will of a "travelling man," and then listen, and if you don't learn more about men and things than you have dreamed, you must be a little hard of hearing. We hear that there are to be cliniques held in the coming fall at some of the dental depots. This is doubtless due to societies withdrawing their cliniques from them. So far as we have been able to hear but little has been done in cliniques since the withdrawal. Dental depots opening their rooms for this purpose could do a good thing in a business way, and would encourage liberality in exhibitions which might be kept out by illiberality on the part of societies. That these in some instances have become so by denying privileges to nonmembers, is true. The First District Society has so legislated. The Connecticut Valley Society invites only members of societies to their meetings. This seclusion is in the air, and none can prevent it. It is on trial, and only time will generate its fruits. Other fields are open if it is desired. So the depots might in the meantime do something for the outsiders. Nothing wicked nor mean in such a step. Anything is legitimate, as we said, providing that it does not trespass on the rights of others. It is a proof that there is a demand for all kinds. Certainly this is seen in the novel step of starting a dental newspaper, and an illustrated one—it can only thrive by patronage. The publisher does not carry on this business for "glory." No, it is quite plain that the glory-seekers are the ones who appear in the picture column. Almost every one knows how it is with human nature when they are looking at their own face. Well, we are all a little weak: we are of the earthy. Some of the faces we notice are better looking than others. So are diamonds. An intelligent, well-dressed lady is often in good form with nice diamonds, but what a contrast in the illiterate, coarse mortal with paste ones in her ears. Rarity is a commodity that has to be searched for. Of course officials are always in "vogue," and rose-bud brides, but Tom, Dick, and McGinnis are a little off. The paper is a little spicy. (Not disparagingly do we say this.) We were all once little. Some ain't much big yet, only on the head end.

We have heard not a little comment for and against this organ—more against, although not anything against—by those who have their pictures framed and hung out. We have noticed in fishing that a new gaudy fly will more quickly attract the lesser finnies, but after awhile a more modest color and size will hook a larger fish. We suppose the paper will thrive during the Congress, for congressmen sounds bigger, and very large men will receive a larger space. They would not be noticed if otherwise, and then, no doubt, there will be those who will distinguish themselves and extras will appear often. There is no telling just what this enterprise will develop. If it proves a success financially, it will be duplicated. A good deal of curiosity has been generated in the hopes of finding out the name of the correspondent from New York; many names have been spoken. So far as we know, none of them is the real one. It is not that the name would add luster, for the letters have not been considered altogether in good form. Not a few journals have expressed themselves adversely to the enterprise. But all these things help to advertise it. It does not follow because it is not in good form, that it will not become popular.

The best things that concern mankind are far from being so. Of course such an organ could not refrain from "letting down the bars," for ethics (good ones) cannot for a moment be considered. To be popular it can have only one intestine; everything must pass quickly through, not any need for being digested at all, for there would be nothing left but effete matter. The publisher said in New York, when he wished to experiment, he took his wife's relations. He changed his vest when he took up this enterprise. You can't gull your wife's relations in everything. We have often heard it said that no class of men were so gullable as dentists. This does not prove that all dentists are fools. As a class they are a real good lot of fellows. We would suggest from all we hear that the *Tribune* would make a big hit to publish a Siamese view picture of brother editors Welch and Paterson, for it is conceded that Ed. Welch did strike Billy very hard, and as it has never been known who struck Billy it would be a real joy to look in the face of the victor and the vanquished. Ed. Welch owed the western journal one, for it showed up his weakness inasmuch as the editor is a professed teetotaller, but when he got on a bust and showed off so flagrantly to the public the western man could not resist the temptation, and did it so effectually, that he disappeared in just one month.

It was a little hard on "the works of art" in the *Items*. They will bear, however, a name of rank ere long, viz., "The Lost Arts." Every one is sorry that they killed so young and useful a man in such a short time. If the "arts" could have been lost first, and saved the young and bright writer, the profession would have been the gainer. Many of the readers of the Review may not know how the editor of the *Items* poured *grape* into the "Dyspeptic Journal" as he termed it. It was a real "grape cure," we think.

It is a singular coincidence that the grape cure originated in Vineland, N. J., the editor's home. It is a nice cure to take if one does not bite the seeds. How pleasant it is for editors to dwell in unity. Everything will be fixed at the congress doubtless, and good will prevail and become historical. We have always had an itching to go to congress, but we have not been quite sure whether we were "reputable." If not quite, we hope this letter will help us.

Everybody who has been to the fair says it is truly worth seeing, but Chicago atmosphere spoils all of one's good clothes there is so much smoke. Stockton won't go on that account. (Poor Levy.) Possibly if he had not worked so hard to smoke him out at the Jersey meetings, he might have gone to Congress also, but he has gone beyond the veil. "If a man die shall he live again?" Many ask, "How old is Dr. Benjamin Lord?" No one knows so far as we can learn. He looks so genial and fresh, and has such a strong and emphatic voice one cannot judge. He looks about the same as he has for the last twenty-five years. He has a very heavy head of hair, works vigorously each day, and believes his methods are certainly as good as most of the modern ones. No engine for him, nor rubber dam, etc., yet young practitioners could learn something from him if they wanted to; we think they could with profit.

A new plate tooth will soon be seen. We think it will rule the sea, for this is Columbia year. As soon as it has been on exhibition it will very quickly be known how many have been invented like it. We think it will prove original, and a mechanical success. Medicaments are much on trial for controlling sensation in teeth and the soft tissues. Those that cook or dessicate are mostly by superheated medicines thrown upon the parts by an air blast. One is an instrument invented by Dr. S. G. Perry, of New York, through which a superheated air blast is forced, which we are told is quite effectual upon sensitive dentine—not so applicable upon soft tissues surrounding the teeth. Dr. Thayer's obtundent has become a favorite with those who have proved it. It is of much value in all operations of minor surgery, applied simply and locally, and it has proved itself a safe remedy after months of use in intelligent hands. This medicine has come to remain, so many good practitioners say. Dr. Thayer is a dentist well known in this vicinity for the last twenty-five years. He does not refuse to reveal its make-up more than the chemical combinations.

Oil of cinnamon has been on trial for nearly two years with us in dealing with pulpless teeth—putrescent pulp—so far it is uniformly successful, and no tenderness by inoculation follows. It sweetens all foul conditions. It does away with all remedies having unpleasant odors which have been so long a disagreeable association in dental offices.

The odontologicals show courage above the melting point, for they held their June meeting in spite of the thermometer at 101. This body is carrying itself into a professional status which will leave behind the society of former days larger repute. There is a more manifest intellectual stamina growing up in this body. In other words, it seems to be aiming toward a truer professional atmosphere. We have never doubted that there was a heart in all of our bodies.

We agree with the expressed views of Editor Truman in the *International*, that the motives of our best men are all right and true in their purposes for the best achievements at the coming congress. So on general principles our bodies are sound at heart, although unwise action will do a very great harm to a very useful body. Such has been manifest, and has been a very decided barrier to progress. While in the Odontological Society there has been not a little which has marred the history of that body, we think it has an ambition for usefulness. Dr. Morgan Howe gave expression at this last meeting to views which prove what we say. He said: "We are an association of practitioners for the purpose of enlarging the benefits of the profession at large." He was speaking of the question coming out of a letter received from Dr. Crouse, referring to the Protective Association taking action in regard to the reduction of the tariff on dental goods. Dr. Crouse tells them that if they will produce the evidence that the organized bodies are in favor of such a movement, the association will take hold of it. It looks as if it may be matured into action in the near future. Dr. Crouse don't encourage heart failure, for the intelligent dentists believe in you. No living dentist could, or would have accomplished what you have done. Be happy when men revile you and say all manner of evil against you falsely. You have lost one man his crown—so claimed—a little more time and you will destroy all his bridges behind him. Blessed is the man who carries about his reward inside—a good purpose.

Spheroidal tendencies and the action of many amalgams were under discussion by the Odontologicals at their June meeting. Prof. Mayr, of Springfield, Mass., the cultured, analytical chemist, was the essayist of the evening. He has something always that will edify thinking men. How many fail to do this! How much has been said on the amalgam question, and how much more is needful to be said that we may see a larger profit from its use. According to the present standard of knowledge, we can't do without amalgam. More and more are we meeting with its use in combination with gold, particularly, and other materials, and it does justify the practice.

Dr. Ives brought before the society the results of an implantation case. The operation was said to have been made by Dr. Younger in his own office, and it was added, that it was supposed, under the most favorable conditions. This was about a year ago, but it was now a failure. It would be amusing if it were not—that such presenting of cases, showed by the spirit manifested that (*I*) have always had (*my*) opinion about this kind of operation. How little encouragement any one would have in pursuing their efforts in the interest of science did they depend upon such advocates. Such men contribute nothing but a public exhibition of weakness. They assume too much in presenting the information that they may have. Really, an intelligent person will not take such a position. Dr. Younger's efforts stand for far more than any such puerile disposition as was shown in this instance. So far, all these operations have not failed; they have enlisted a good deal of investigation, and not a little that has not shown much intelligence. We have a class of men who too easily dabble in every new thing which is presented, particularly if it it be in the more advanced lines of surgical practice. It is painful how much they will assume, with no mental caliber worthy of notice; men who are impressed to do something beyond the ordinary; are not easily turned from their purposes by pseudo advocates.

We have received the Twenty-eighth Announcement of the New York College of Dentistry, and in it we noticed the attractive degree, "F. C. D." that this college holds out to ambitious chaps. What has been the force of such an offering for all these twenty-eight years? Who has received it? One man was toadied to, but it failed; he did not take the hook. He was a millionaire, yet none of his riches went into the coffers of this enterprise, and the degree does not embellish his tombstone. How empty are such doings. They are deadly. There is no fruit on them that any manly man cares to pluck. If the proprietors could have had force enough to have conferred this degree upon him who was the inspiration of the college it would have laid a lasting honor upon the institution for all time and made it a degree worthy of future ambition. As it is, no one who knows the facts will care to seek this "F. C. D." The time has been that this degree could have reflected credit upon our calling, but it can only trail in the mud hereafter, for men in its interest have sought to dishonor the noblest man that has ever borne the title of dentist. Any man or men who could fall so low as to seek to defame such a man as Dr. W. H. Atkinson can only deserve and carry the odium of all honorable dentists for all time. These things are considered a burning disgrace to those who have fostered them. Will it not be a fitting time to recall the praise and honor we owe to some who have honored us when we come together in the great Congress? This is in the thought of some noble hearts.

College professors are on the increase. We notice by the Buffalo University Announcement of the Dental Department, Profs. Bœdecker and Francis, of New York City. The former is well known by his meritorious microscopical teachings which have reflected much credit upon our literature. Prof. Francis has a chair in juvenile dentistry in which he is versed. As many know it is a subject on which he often expresses himself. Good management at the beginning with a patient cannot be too much exercised —it is the little foxes who spoil the vines. We have just put Logan crowns on the roots of the four superior incisors for a lad of twelve years. We have only had occasion to place one porcelain crown in the mouth of a patient of that age during our entire practice of nearly thirty years. We need to emphasize the value of these crowns as compared with the more common practice of past years of either leaving the roots to their fate or placing a plate after the removal of them and securing a decidedly deformed expression by absorption. We lost the superior centrals at twelve years by a fall and we carry the testimony in our mouth of our expressed views. These strong roots were removed, and at the age of twenty-one, we had a space for one central which was provided for by an artificial tooth on a plate, of various devices for twenty-six years. Now it is substituted by a bracket bridge upon the root of a lateral cut off for the purpose of carrying the fixture which has proved a much appreciated success. The detail of these facts emphasizes our progress. We will add that our case is one that advocates the practical wisdom of cutting off a sound crown to secure a firm foundation for carrying a dummy central. This operation was made by Dr. C. M Richmond at the beginning of his career in this line of work in New York City, and it is in perfect order, and has never been anything but comfortable, and eminently serviceable.

It seems that the meeting to be held in Rome, Italy, is not off, according to the latest information; Dr. Jacobi in the *Cosmos* is our authority. We learn that a good number of papers are in the hands of the committee, and the dental section is secured against failure. Dr. Kingsley, its honored chairman, has been very dangerously ill with a double pneumonia ; after a trip to Mexico, he returned and made a two days' stop at Chicago. He sailed for Dresden soon after his arrival home. He will be a guest of Dr. Jenkins for a few weeks, then in company with his brother, Dr. Charles Kingsley, for many years in Paris, will go to Carlsbad, and remain until the opening of the Congress in Rome.

Dr. Kennicott we see is also gone. We recall him distinctly as we first met him in Chicago, at the meeting of the American Dental Association in 1864. He was an energetic practitioner at that time. Chicago has lost three of its ablest practitioners since that date. Dr. Cushing makes up the quartette of useful men that belonged to that day, and he still survives; may he long live among us, an honor to our calling. Too many of our number leave us prematurely. We are in better health than at any time for twenty years, and if any one feels any younger than we do, we want to shake hands. Perhaps we may at the Congress. As a social feature the Congress ought to be an immense social success, and we believe it will be. We purpose to smile upon it if fortune favors us.

QUID NUNC.

REVIEWS AND ABSTRACTS.

NEW JOURNAL.

The Pacific Coast Dentist is the newest candidate for readers, published in San Francisco, California, and edited by Dr. J. D. Hodgen; with a long list of collaborators, all well known in California and on the Coast. The first (June) issue is a neat, clean and handsome number; the contents well selected and interesting. With the support of the different societies on the Coast, California, Oregon, Washington and adjacent territory, there is no reason to fear that it will lack for original matter. We wish it financial and literary success. New journals stimulate the timid writer to try his wings in an unknown atmosphere, and many who have grown indolent reawaken, and much valuable matter that would have been wasted is permitted to enrich the world's stock of knowledge. The price of the Journal is $2.50 per annum in advance.

BOOKS RECEIVED.

LETTERS FROM A MOTHER TO A MOTHER. Wilmington Dental Manufacturing Co. 4th edition. Price 25 cents.

MEMORANDA.

Dr. L. N. Seymour has recently located in Chicago.

The Congress next month. August 14, remember the date.

In using trichloracetic acid the addition of two drops of oil of cassia to a three per cent solution is desirable.

A few dentists with their families may be accommodated in a private family by communicating with the editor.

Southern Dental Association will meet at Kindergarten Hall, 10 Van Buren Street, on August 11, at 10 A. M.

Dentists are among the most liberal patrons of the World's Fair; not only in numbers, but in the frequency of their visits.

National Association of Dental Examiners will meet in Chicago, August 11, at 10 A. M., at 300 Michigan Avenue, Chicago.

Drs. A. S. Waltz, A. O. Hunt, J. Edward Line, I. P. Wilson, W. O. Kulp and W. J. Barton were recent visitors to the World's Fair.

Have you joined the Columbia Dental Club ? Every dentist in Chicago ought to consider it his duty to join the club for the six months anyway.

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

Meeting will begin at 10 A. M., Thursday, August 10, at 300 Michigan Avenue, Chicago.

CORRECTION.

Henry W. Morgan, of Tennessee, is the Secretary of the section on operative dentistry, instead of Meryon, as printed last month.

MARRIED.

Noyes—Wells.—At Delavan Lake, Wis., July 1st, 1893, by Rev. Joseph Collie, D. D., Dr. Edmund Noyes, of Chicago, and Miss Fanny Henrietta Wells, of Hartford, Conn.

AMERICAN DENTAL ASSOCIATION.

The thirty-third annual session of the American Dental Association will be held in Chicago, commencing Saturday, August 12, 1893, at 10 o'clock A. M.

Geo. H. Cushing,
Recording Secretary.

The chairman of the committee on membership of the World's Dental Congress desires to thank the Secretaries of a large number of dental societies, who have complied with his request for lists of their members for the use of the committee. The responses have been numerous, prompt and cordial.

Edmund Noyes,
Chairman of Committee on Membership.

NOTICE.

For the accommodation of the different Dental Associations whichare to meet in Chicago before the convening of the World's Columbian Dental Congress, I have secured the Kindergarten College Hall, 10 Van Buren St., which can be used for all meetings desiring rooms.

For further information, address

J. N. CROUSE,
Chairman, Executive Committee American Dental Association.

CALIFORNIA STATE BOARD OF DENTAL EXAMINERS.

A meeting of the California State Board of Dental Examiners, for the examination of applicants to practice dentistry in this State, will be held in San Francisco, Tuesday, August 1, 1893, commencing at 9 A. M., instead of August 8, as previously announced.

This change is made in order to permit members of the board to attend the Columbian Congress which meets in Chicago, August 14.

Truly yours,
J. L. ASAY, President.

CALIFORNIA STATE DENTAL SOCIETY.

The California State Dental Association has closed its twenty-fourth annual session, June 13–16, with an addition of twenty members. The newly elected officers are as follows: President, L. A. Teague, 10 Geary Street, San Francisco; First Vice President, I. W. Hays, Grass Valley; Second Vice President, C. L. Goddard, San Francisco; Third Vice President, W. F. Lewis, Oakland; Corresponding Secretary, C. E. Post, 14 Grant Avenue, San Francisco, Treasurer, Thomas N. Iglehart, San Francisco.

W. Z. KING, Recording Secretary,
1001 Valencia Street, San Francisco.

HOTEL ACCOMMODATIONS.

TO THE EDITOR OF THE DENTAL REVIEW.

Sir:—From letters received from dentists in different parts of the country, I am inclined to think that there is a lack of information as to the expense of living in Chicago during the season of the World's Fair. Board and lodging were never more reasonable than now. Rooms can be had, where two are willing to room together, for fifty cents a day each. First class rooms and accommodations can be had from a dollar to a dollar and a half per day, when parties wish to room alone. The highest priced hotels are entertaining people for $5.00 per day, room and board. For twenty cents, in restaurants just outside of the Fair grounds, will be furnished three eggs, a cup of tea or coffee, and all the bread and butter one wants. For thirty-five cents can be had a good, well cooked steak, potatoes, tea or coffee, and bread and butter.

The boat, railway, and street car companies are doing all in their power to furnish the best and cheapest transportation possible.

Of course there are a few catch-penny schemes, but they are not in connection with the responsible hotels or the Fair. Considering the size of the Exposition, the number is remarkably small.

I have made this investigation for the purpose of informing the dental profession of the exact facts concerning the expense here, and would urge upon every one to remain as long in Chicago as possible. A month or six weeks can be spent very profitably in seeing what the world has done and is doing, and a longer time could be used to great advantage. This can be done by stopping at a moderate priced hotel.

The information I have given in this brief article may not be necessary to every one but I am quite sure that many have been misinformed as to the expense.

Yours cordially,

J. N. CROUSE.

PALMAM QUI MERUIT FERAT.

Under the above caption the editor of the *Dental Record*, of London, indulges in some tirades about honorary degrees alleged to have been granted in America. For the benefit of the editor we will say that during the nine years last past, only two honorary degrees have been conferred on Englishmen by American colleges. Therefore the charge is not true that such honors have been bestowed on "provincials" in England. The college association, composed of the whole number of colleges in the United States (about thirty in number), agreed *not* to confer an honorary degree without first making an application to the whole body. So far as I know the rule has been infringed but once, and is not likely to be again.

Newspaper clippings sent to the editor of the *Record* from the provinces are false, as no dental college in America would so belittle itself as to confer a degree on an advertising provincial of such low grade. Degrees are conferred on those who satisfactorily pass all examinations and fulfill all other requirements.

EDITOR.

THE

DENTAL REVIEW.

VOL. VII. CHICAGO, AUGUST 15, 1893. No. 8

ORIGINAL COMMUNICATIONS.

COMBINATION OF COHESIVE AND NON-COHESIVE GOLD IN FILLING.*

BY C. N. JOHNSON, L. D. S., D. D. S., CHICAGO, ILL.

To say that nothing new can be written upon such a subject as this is to say something old. The statement is often made, and the impression seems to be firmly fixed in the profession, that nothing original can be said about the manipulation of gold in filling teeth. And yet at the recent meeting of the Illinois State Dental Society a prominent member of the profession made the assertion that there never had been presented a suitable paper dealing with the subject assigned for discussion this evening. A somewhat careful consideration of the matter leads to the belief that the speaker was right. It is probably true that no paper has yet been published giving a detailed, definite method for combining cohesive and noncohesive gold in the same cavity. The reason for this probably lies in the fact that there is such a diversity of form in the cavities we are called upon to fill that no one method will apply to all cases. Even in cavities classified under any one general head, no uniform plan of procedure can invariably be followed to advantage. Judgment and discrimination as to the proper arrangement of pellets or cylinders in each given case must be exercised in order to gain the best results. And yet it would seem desirable to formulate some definite rules of procedure by which a beginner might be led to manipulate the filling material with some degree of methodical precision.

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*Paper read before the Chicago Dental Society June 6, 1893.

In a paper necessarily limited in length by the plan of having two subjects presented for discussion in one evening, it will be impossible to treat this subject in anything like a complete manner. Only one method will be described, and this not so much in detail as might to some seem desirable.

In the use of the terms cohesive and noncohesive gold, many writers seem to assume that there is no gradation in character between a gold which cannot be made to weld with any amount of pressure--noncohesive; and one which welds on the very slightest provocation to a degree which renders it harsh and unyielding in its working qualities. To them the term cohesive gold evidently signifies a substance of a sticky, unmanageable nature, a pellet of which, when accidentally dropped in any wrong position in the process of filling, is irretrievably fastened to this false situation, and cannot be shifted or worked into a more desirable position, on account of its persistent tenacity in cohering to the surface of the condensed gold already in the cavity. Gold having this extreme cohesiveness is a rarity. If the cohesive gold in universal use by the profession possessed such remarkable cohesive properties as this, we should see very many more leaky fillings than we do, and we should also see the surfaces of gold fillings retain a polish better than most of them do. The truth probably is that among all the golds on the market to-day there is comparatively little that is absolutely noncohesive, unless made so through special preparation by the dentist himself, and a smaller per cent still that could be claimed as perfectly cohesive, unless other means than the ordinary methods of annealing are resorted to. It may therefore be assumed that most of the gold inserted in teeth at the present time is used in a semi-cohesive condition, and this condition is more favorable to good results than would an equal use of either a strictly noncohesive or a thoroughly cohesive gold.

But there are places where we need a noncohesive gold, and others where the gold should be as cohesive as we can make it, and it is to the definite arrangement of the different forms, noncohesive, semi-cohesive and cohesive in the same cavity that your attention is invited.

Let us suppose a cavity properly prepared on the proximate surface of a bicuspid, extending well over on the occlusal surface. The proper preparation of a cavity like this implies that the cervical outline shall be as nearly horizontal as circumstances will permit. An abrupt angle between the cervical and lateral outlines is of course impracticable, but the curve should be a rather sharp one, in order to give a broad, level base to the cavity.

The noncohesive gold to be used should be in the form of cylinders, and the cylinders should be sufficiently large so that when laid along the floor of the cavity with the ends facing the buccal and lingual walls and there compressed, the layers of foil forming the cylinder will be wide enough to extend from the wall of the cavity nearest the pulp to the cervical border, and overlap it.

The portion of the cavity in which the filling should be started in these cases, is usually in the angle formed by the junction of the lingual with the cervical wall, or, in other words, in the cervico-lingual corner. This statement is made with the reservation that no one method of procedure can safely be followed in all cases. We cannot always obtain an ideally formed cavity, and any modification in the form of the cavity may modify the starting point of the filling, as other processes of operating are modified by circumstances.

A large cylinder of noncohesive gold is laid on its side in the cervico-lingual corner, with one end looking toward the buccal wall and the other slightly turned up toward the occlusal surface. This is carefully "coaxed" into position without breaking up the layers forming the cylinder or disintegrating the mass. No attempt is made to condense this first cylinder. It is partially compressed to ascertain whether or not there is going to be a sufficient mass of gold which, when condensed, will perfectly fill any undercut, and extend across the floor of the cavity and slightly overlap the cervical border. In shallow cavities one cylinder, of a size so large that it will barely pass through the orifice of the cavity without being torn or disintegrated, will sometimes accomplish this, but in many cases it will require two or three cylinders before a sufficient bulk of noncohesive gold is obtained. When the required amount is in position, a smaller cylinder of cohesive gold is annealed as thoroughly as can be done without melting the outer layers of foil, and this is placed upon the uncondensed noncohesive gold. A plugger point, shaped to conform somewhat to the walls of the cavity, is then brought down upon the cohesive cylinder, and force by hand pressure is exerted to drive the mass directly toward the cervico-lingual corner. This wedges the gold firmly into the angle of the cavity. The noncohesive gold is irresistibly carried before the cohesive, and is adapted to the walls without being punctured and squeezed out of the cavity, as would be the case if the plugger point were brought directly upon it. The cohesive cylinder, when thoroughly annealed, forms an impenetrable mat against which the plugger may be pressed with sufficient force to ensure adaptation and condensation, without breaking up the mass of gold into fragments. The cohesive gold is carried into the substance of the noncohesive, and lends solidity and stability to the first portion of the filling. The only means by which these first pieces of noncohesive gold can be condensed independently of the cohesive cylinder without danger of disintegration, is by the use of broad-pointed pluggers, and with broad pluggers there is no assurance that adaptation is perfect in undercuts or grooves. The spreading qualities often attributed to noncohesive gold must not be depended on to any appreciable extent. It is probably safer to assume that gold, whether cohesive or noncohesive, will go only where it is forced to go by definite and direct pressure, than to depend on a lateral moving of the mass when the plugger point is brought to bear squarely upon it.

When the first pieces of gold are anchored in position it will be found that the cervico-lingual corner of the cavity is well covered over, with the gold extending further along the cervical than the lingual border. It is sometimes necessary to use two or even three cylinders of cohesive gold to overlie and protect the noncohesive, but no cylinder except the first should be annealed to a high temperature. The object of high annealing in the first cohesive cylinder is to obtain a mass of gold the layers of which will weld on the slightest pressure, so that when the plugger point is brought against it the layers cling together so tenaciously that great force may be exerted without puncturing it. This quality not being so necessary in the succeeding cylinders, they are rendered only semi-cohesive.

When the filling has progressed thus far in the ordinary cavity of a bicuspid, it will usually be found that the gold extends more than half way across the cervical wall in the direction of the buccal wall. The conformation of the cavity viewed at this stage of the operation shows a decided depression at the cervico-buccal corner, and into this depression a cylinder of noncohesive gold is placed, in the same general arrangement as with the first cylinder in the cervico-lingual corner. The end looking toward the lingual wall will slightly overlap the gold already in place, while the other end will curve toward the occlusal surface along the cervical third of the buccal wall. The same plan of anchorage is followed here as with the other corner, a retaining instrument being held firmly against the condensed portions of gold to keep the mass from moving while the process of wedging between buccal and lingual wall is progressing. When the span is made between these two walls and the gold thoroughly condensed along the whole cervical outline, and up the cervical third of the lingual and buccal walls, we have a firm foundation for the filling, which, if the cavity has been properly formed, cannot be tipped or dislodged in any way by mallet force during the subsequent process of the operation.

Up to the time when the connection is fully made between the lingual and buccal walls, and the cervical outline well covered, a mallet of any kind is ordinarily contra-indicated. Hand pressure vigorously exerted in the proper direction, will ensure good adaptation, with less danger of injury to margins. After the floor of the cavity is covered, a mallet should be used to complete the condensation. The first blows should be struck midway between the buccal and lingual walls, and the plugger point carried in either direction from the center toward the walls, the last blow coming on the gold immediately overlying the walls.

The cavity is now filled about one-third full. A cushion of noncohesive gold covers the margins, while solidity is secured by a layer of semi-cohesive gold over it. The filling is slightly higher along the buccal and lingual walls than in the center, while the whole mass is firmly anchored in place. The most difficult part of the operation is completed, and the process from now on consists merely in building back and forth between buccal and lingual walls. This, for the most part, is done with semi-cohesive gold, but at any point in the cavity where there is a decided undercut or groove, a cylinder of noncohesive gold should be laid into it and driven to place with a smaller cylinder of cohesive gold. As the surface of the filling is being reached, and all margins are protected, the gold should be annealed thoroughly to gain the benefit of its greatest cohesive properties.

When the occlusal portion of the cavity is approached a definite plan of anchorage should be followed to insure firmness of the filling at this point. If the groove running between the cusps and leading to the depression near the opposite marginal ridge is deep, a cylinder of noncohesive gold should be laid in it with the ends looking mesially and distally. A cohesive cylinder should be placed upon this and thoroughly condensed into it, the end of the latter overlapping the cohesive gold already in place. From this point to the completion of the filling, the gold should be made as cohesive as possible. Where the groove is shallow cohesive gold should be used throughout the entire occlusal portion of the filling. In case the depression near the opposite marginal ridge dips into the dentine much deeper than the groove between the cusps, it should be filled with noncohesive gold nearly to a level with the floor of the groove before any gold is placed in the groove itself. In these cases the groove is usually shallow, and we now have two sections to the filling--the main body in the proximate cavity, and the smaller piece in the depression on the occlusal surface. A cylinder of cohesive gold is then placed in the groove, with one end overlapping the distal section and the other the mesial, and condensed so as to bind the two portions together. Gold thoroughly annealed is used to complete the filling.

It will be seen that the general arrangement of the different forms of gold in a filling of this kind is as follows : Noncohesive gold lines the cervical portion of the cavity and fills any deep depressions or undercuts, semi-cohesive gold forms the bulk of the filling, while a decidedly cohesive gold covers the surface.

The selection of plugger points for this method of filling is important. The question of form cannot be treated upon in this paper, but a word may be said as to serrations.

For the purpose of fastening the first pieces of cohesive gold into the substance of the noncohesive, pluggers with deep serrations are called for. Deep serrations secure an interlacing of the layers, and result in a more stable union between the two forms of gold than can be accomplished with shallow serrations. In the process of building up the filling with semi-cohesive gold when we are simply adding piece after piece to the main mass to increase its bulk, and not working around margins, deep serrations are indicated on the same principle. But in condensing over margins deep serrations are dangerous, on account of the tendency to puncture the gold and injure the enamel borders. Shallow serrations should be used along all margins. As the surface of the filling is approached and the gold is rendered more cohesive, the necessity for deep serrations passes away, and the best results are obtained by using shallow serrations. When the last piece of gold is in place, condensation may be completed with pluggers having no serrations.

The statement just made with regard to deep serrations applies only to hand pressure, the hand mallet, or automatic mallet. With the engine, electric, or any of the rapid acting mallets, deep serrations are contraindicated.

In the present paper only one form of filling has been described. A detailed description of the methods to be followed in the different classes of cavities would extend the paper beyond the limit assigned to it.

CAPPING PULPS.*

BY F. H. GARDINER, M. D., D. D, S., CHICAGO, ILL.

This is a threadbare subject, and the only new thing I shall offer to-night will be:

1. The safest method of destroying the pulp of a temporary tooth is to first cap it with oxychloride of zinc. The necessity for capping the pulp of a temporary tooth exists only when a portion of the crown has been destroyed prior to the fourth or fifth year; the resorption of the root of a deciduous tooth not usually beginning until a later period.

I shall have nothing to say concerning the preliminary treatment of the pulp of a tooth, presuming that before capping is attempted, the pulp will be in a normal or at least a healthy condition.

2. The pulps of adult teeth should be capped, or efforts to save the pulps should be made in all oral teeth, those exposed to view, no matter at what age they may become exposed. The pulps of teeth that are exposed posterior to the second bicuspids, if any doubt exists as to their being saved by capping, should be destroyed at once. This applies to nearly all ages above the seventeenth or eighteenth year.

THE MODUS OPERANDI OF CAPPING.

3. After application of the rubber dam, perfect dryness of the cavity and surface should be obtained. Over the surface of the pulp a thin film of Canada balsam should be placed, or a film

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* Read before the Chicago Dental Society.

of copal ether varnish. After the evaporation of moisture has taken place, either, a very thin paste of oxysulphate of zinc should be gently manipulated over and beyond the point or points exposed.

When this is sufficiently hardened, a portion of the surplus may be trimmed away and the whole cavity filled with oxyphosphate of zinc. This must be allowed to harden for a period of not less than thirty minutes. When the patient is ready to leave the office and before the rubber dam is taken from the tooth, the surface of the filling should be painted with a solution of copal ether varnish. The use of a blast of hot or cold air will cause this to become rapidly dry.

Care must be taken in all such cases to avoid filling the cavity too full, so as to produce no pressure on the pulp in mastication, or when the teeth come together, after wedging, in case it should be a proximal cavity.

This, gentlemen, is the simplest method for capping the pulps of teeth that I can deliver myself of, and I commend it to your careful consideration with the hope that no pulp will be capped by any one unless there is future need for it.

A Solution of the Dental Law Question.

By J. D. Moody, D. D. S., Los Angeles, Cal.

The difficulties in the way of dental legislation seem well nigh insurmountable. On the whole, progress has been made, but at a cost of tireless energy, and of discouragement enough to dampen the ardor of any but the most pugnacious individual. Even a point once gained, it has to be maintained by a constant vigilance, and a warfare that is both distasteful and wearing to those prosecuting cases.

The dentist, by his position, is the most competent to collect evidence and prosecute infractions of the law. But the misunderstandings that would result, and the odium attaching to his action prevents his doing this. Consequently there is not a proper enforcement of the law; and the law itself, as well as those who do try to enforce it, are brought into discredit.

All dental and medical laws are looked upon as class legislation by the community in general, and there is a wide-spread feeling against all such legislation. Even legislators are only won over to such measures by the most persistent pleading. Could antagonism to dental legislation be removed it would tend both to the advancement of the profession and the gain of the public. The opposition comes largely from the cities, and from the makers of rubber plates. In the country it is the man who depends largely upon mechanical dentistry who is most active in opposition or indifferent to the law.

Suppose a law be drafted containing a provision somewhat as follows, viz: "*And provided*, that nothing in this act shall be so construed as to prevent any person from making and inserting artificial dentures." At one stroke this would remove most of the opposition. It would tend to create a race of mechanical dentists in all cities and larger towns. Even in smaller towns, in time it would come to be that one dentist would do all the mechanical, especially the rubber work, and the other be really what he is now only in name, "a dental surgeon." A large number enter the ranks only for the money, these begrudging the cost of an education would not enter college, would not enter the dental ranks, and ours would be then in fact a scientific profession. This would render permanent the breach between the strictly mechanical and the operative or surgical departments of dentistry. It would make artisans of the one and scientists of the other. It would place the one where it really belongs, among the trades, and the other in the higher departments of scientific training. Any dentist desiring, from choice or necessity, could combine the two, as in smaller towns. In choosing a lifework some would be attracted by the simple plate work, and he would occupy his proper level, while the other one, unhampered, would the sooner reach the higher position. In a short time the public would come to recognize the difference between the mere artisan and the professional. In the cities the Cheap Johns would be largely confined to plate workers, and the odium attached to their association would not affect the profession. The two classes would naturally gravitate further apart till they would have nothing in common, and consequently no clashing of interests. The dental surgeon would get pay for extracting, the same as a physician for amputations, and the plate worker his pay the same as the maker of artificial limbs.

The public would have the benefit of competition in that line where it naturally belongs, and professional standard not be constantly trailed in the dust.

A law of this character would also go a long ways toward solving the code of ethics question.

"METHOD OF HERBST AGAIN."

BY W. E. CHRISTENSEN, D. D. S., PHILADELPHIA, PA.*

The editorial pen of Dr. A. W. Harlan is no stub pen but a rather pointed one, and once more it has turned its pointed wit desolatingly against the question of treating exposed pulps after the method of Dr. W. Herbst.

Professor Heitzmann complimented Dr. Harlan's first paper on the same subject as being "witty and spirited," and indeed it struck me to be that, more than anything else; and when Dr. Harlan finds it necessary to call my article in the *Dental Cosmos* "somewhat labored," I am sorry it seems to have been too heavy for his light spirit. Editors, however, have the duty of being "witty and spirited," and of entertaining their subscribers with something more vivid than the daily dry food of the more or less "*original* communications" and reports of trivial society meetings; yet, I think it ever so cruel of Dr. Harlan so "rudely" to destroy the "rather doubtful compliment" to Dr. Witzel for having introduced the method of amputating and mummifying a pulp, and to do so for the reason that he, Dr. Harlan, some years earlier, out in some western town of America, has seen some one do the same thing. I believe that no day passes without somewhere or other abstract and uncommon operations being performed; but I do not see how such procedures could be taken into consideration as long as they remain in obscurity. It has so far been custom to regard standard literature as dimensive, and I believe it will remain so until Dr. Harlan introduces his new reform more extensively.

If Dr. Harlan's "editorial" teaches nothing else, it teaches me some rather broad expressions, such as for example, "sulphuretted hydrogen pesthouses." Remarkable it may seem that Dr. Harlan himself, as well, I fear, as every dentist in the United States, knows a great deal about these institutions, though neither the Witzel nor the Herbst method has so far been practiced in this country. What are we fighting against if not just such results; and are not such results so frequent even here in the promised land of dentistry that it is worth while to fight against them?

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* In answer to "Editorial," page 496 of the "DENTAL REVIEW."

Dr. Harlan is greatly mistaken when he believes the two cases of root filling failures, which I referred to in my paper, to be the whole amount of cases upon which I argue my opinion. If he would read my article correctly he will find that he is mistaken in several points, and that I only give those two cases as examples on such which every dentist meets in practice nearly every day, and I venture to say, go and count the people who have not yet suffered from periodontitis, and I believe it shall be an easier task than to count those who have already suffered from the experience.

I consider "sulphuretted hydrogen pesthouses" a famous expression, and to finish the scientific picture, do not let us forget these scientific pesthouses, scientific chimneys. Always as "scientific" as possible, it looks so nice on the paper, you know. As for the chimneys, they all have one or get one by time. Who does not know those pinhead sized white spots forming the center of the dark red-blue gum over so many a "scientifically" rootfilled tooth, through which an explorer will find its way right to the apex of the root? Count them and see how many we have of them here in dentistry's highest region, where Herbst's and Witzel's methods have not yet been practiced. I am afraid the "science" is smoking rapidly out of them letting but the vulgar gutta-percha, or worse than that, the royal gold and the chronic inflammation remain.

The first patient I took to "indulge such an absurdly redic-ulous practice" upon as that of the Witzel's method was I, myself, when I, about six years ago, treated and filled my own left lower six year molar after this method. This tooth is to-day in perfect condition, and has all the time been as comfortable a tooth as any one in my mouth; and Dr. Harlan is most kindly invited to examine it at any time, also, should it ever "Kobold" I shall take great pleasure in informing the doctor about it; until then Dr. Harlan may amuse himself kobolding for the profession without, I believe, hurting the Herbst treatment at all, as long as there is one fact which ever so much "talk" will not be able to upset, that of the success every dentist will have, who with sincerity, makes the task "*Ab esse ad posse semper valet consequentia*!"

Dr. Harlan's only road to heaven is that of "protecting the apex of each root by stopping it with a filling or growing an encystment over the end." It is a high road to everlasting happiness, and a road on which students and practitioners are willing enough to walk; sorry to say, however, it is the road on which the greatest number of failures occur, all dental operations considered. On page 457 of the June number of the DENTAL REVIEW it is said that Dr. Bonwill once uttered that "but few even of the best of dentists are capable of performing the high class of work necessary to make it successful." If people who are "eager for the truth" are also bold enough to face the truth, Dr. Harlan, like myself, must be ready to accept Dr. Bonwill's statement, but when this statement fits to the great number of average dentists with regard to bridgework, how much more does it not fit when rootfillings are concerned? I consider the first by far easier than the last. We have there the open field to work on; patient opens the mouth, and a good mirror shows us the rest. The greatest difficulty in doing crown and bridgework is to make well fitting collars around the necks of the roots, however, we have the roots exposed to the eye, and we can easily overlook what we do and what is to be done. On the other side, I consider it as "absurdly ridiculous" as anything can be if Dr. Harlan or anybody else would assert that they in *every* root are capable of reaching *exactly* to the apical foramen and be positive of not having been any farther at all, and also to be able to insert a solid filling exactly to this point without forcing any atom of septic matter out of the foramen. It may be done in some cases, but not in all; not even with the expense of most time absorbing care, and therefore it is surely very seldom done by the greatest number of busy dentists. Then I also consider any irritation at the apex of the root, caused either by injury of instruments or by forcing particles of any septic substance through the foramen, or irritation by altogether working too much in the roots to be more dangerous than anything else, and most often the causes of subsequent inflammations, acute and chronic, the later with formation of the well-known fistulas. The necessity of using sufficient strong antiseptics during treatment seems to me also to be much too little recognized; and all in all, it is with a view to all these points that I consider any simplificated treatment to be improvement, and such is the Herbst method. The only reason why I undertake to write in favor of it is the invariable satisfactory results which I have with it every day, and have had during a considerable length of time. Dr. Harlan may now to please himself ignore this entirely or stamp it "count for nothing," and in his eagerness for "truth" believe nothing at all, which logically is to say that all that is said in favor of it is untrue; yet this will not change the fact that the Herbst' treatment is not a mere theoretical hypothesis, but a procedure which has already proved satisfactory in practice through a sufficient length of time to entitle it "to take its place in our armamentaria."

When Dr. Bœdecker introduced the question to the profession he had before given it a fair trial in practice, and a close scientific examination, the result of which was a practical and scientific success. Opposite this Dr. Harlan, in his eagerness to "arrive at the truth" seems to take the question very much "*absque causae cognitione*," and tries to fight the question after the manner of humoristic newspapers. As eager as Dr. Harlan is for the "truth," as eager he is for "preserving historical accuracy;" hence he has troubled himself very much in inventing and applying such names as "narrator," "spokesman," historian," "Herbst advocate" etc. to those who have introduced and countenanced the method in this country. I doubt not that the doctor's motive has been purely that of "preserving historical accuracy" as long as it else would be very ill applied, and would remind us too much of that past time of nicknames when we were not yet old enough to enter the college.

As for the Witzel method, I would still say that there are theories which are accepted and which will remain to be, even if Dr. Harlan tries to ridicule them ever so much. The theory of mummification is not one of to-day, but one which has preserved the corpses of the ancient Egyptians through thousands of years down to the present day, without rendering them into "sulphurretted hydrogen pesthouses." The task of preserving the probable corpses of the pulp-remnants is so far easier, as it is only to last for a comparatively very short time.

I feel like closing my paper with the same excuse with which Dr. Harlan commenced his paper at the meeting in New York, begging pardon for what may seem "somewhat pointed remarks." There is certainly nothing I dislike more than to be personal, and nothing I consider more useless and out of place than when writers do not respect certain forms and limits of expression, and rather than to enter into any further discourse of this kind, I shall submit to Dr. Harlan's editorial privilege of having the last word.

[Remarks by the EDITOR: We do not shoot at small game but once.]

TREATMENT OF PULPLESS TEETH.*

BY DR. J. J. CORNELIUS, CHICAGO, ILL.

The subject which we are to discuss to-night (The Treatment of Pulpless Teeth) has, I presume, been the one that has given to the average thinking, conscientious dentist the most anxiety and trouble of any operation that is presented to him in daily practice. From the time when it was considered the best that could be done to destroy the pulp and without very much cleansing of the root canals plug the pulp chamber with cotton saturated with creosote or carbolic acid, then build up with amalgam to the present, when all the resources of the materia medica are brought to bear upon this class of teeth, the operations and results have been more or less unsatisfactory to the conscientious dentist, for in spite of his best efforts failure will sometimes stare him in the face.

Did the cotton and carbolic acid treatment save any teeth? To be candid (while not advocating such a course at present) I shall have to acknowledge that I have seen teeth that had stood the treatment and had been preserved useful servants of their owners for from five to ten years.

But the methods of treatment of thirty or forty years ago would not meet the requirements of the age of crown and bridge work, consequently through experiment and trials, through failures and successes the progressive dentist labored on until the present standard of excellence has been attained. And instead of saving a very small percentage of such cases, we can feel reasonable confidence in our ability to save the majority of pulpless teeth. In daily practice we are confronted by a variety of pulpless teeth.

1st. We have those in which the pulp has just been devitalized.

2d. Teeth which have been filled and in which the pulp has died.

3d. Abscessed teeth.

4th. Abscessed teeth with fistulous opening.

The first class, or those teeth in which for some good and sufficient reason it has been decided that the pulp must be devitalized, are usually very easily and successfully treated. In an ordinary case with no unfavorable symptoms following the destruction of the pulp, the course to be pursued is quite simple.

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*Read before the Hayden Dental Society of Chicago, April, 1893.

Remove the pulp, cleanse the canals thoroughly, and when perfectly dry, fill. From my own experience with this class of teeth I am convinced that the quicker the operation is performed; where there is no inflammation in the surrounding tissues, the more satisfactory will be the results, and the less liability that unfavorable symptoms will arise.

Occasionally we have presented to us the second class of teeth "those which were filled, but in which the pulp has died." In such cases after opening into the pulp chamber and cleansing the root canals (which should be done very carefully so as to avoid forcing any of the contents of the canals through the end of the roots), the cavity and root canals should then be well syringed with hot water, followed by hot air and root drier, and a good disinfectant; then after the root canals are thoroughly dried out, pump full of any of the essential oils and seal, and let remain until all sign of inflammation shall disappear, which will usually be in from three to seven days. It may be necessary in some cases to repeat the treatment two or three times before the expected result is obtained, and especially is this true of teeth in which we find a blind abscess, for it must be treated until all signs of pus or serum shall disappear.

3d. We have the pulpless teeth with an abscess.

After cleaning out the cavity thoroughly, and cleansing the pulp chamber and root canals, syringe with hot water, followed by peroxide of hydrogen, a five per cent solution of carbolic acid (or stronger if you wish), or any disinfectant or antiseptic which you may have proved to be good and that will attain the result for which you are striving, namely the stoppage of the discharge of pus, the reduction of inflammation, and the consequent healing of the surrounding tissues. After using the disinfectants, dry thoroughly as possible, and pumping full of one of the essential oils, close the cavity with gutta-percha to exclude all air and moisture. It will often happen that patients with this class of teeth will return within from twenty-four to forty-eight hours, complaining of soreness and pain in the tooth. A repetition of the treatment will generally give relief.

This class of teeth will generally yield to treatment in from ten to thirty days, but it is not advisable to fill until satisfied that all inflammation has disappeared.

The fourth class of pulpless teeth presented for treatment is the abscessed tooth with fistulous opening, and should be treated the same as teeth of the preceding class, with the exception that the remedies may and should be pumped through the fistulous opening, cleansing the abscess and the track of the fistula of all trace of pus.

The fistulous opening will also serve as a means of getting at the diseased tissue at the end of the root with medicines by carrying the remedies on absorbent cotton through the opening into the abscess, thus enabling us to fight the enemy from two directions.

The remedies to be used in the treatment of pulpless teeth vary with each operator. My experience has been that the hot water, hot air, the essential oils, the disinfectants, and the antiseptics generally in use, will in most cases, when combined with judgment, experience and thoroughness in the details of each operation give us the desired result.

In closing let me say that in the treatment of this class of teeth the careful, conscientious workman will find much at times to discourage him; some cases will be found which will not yield to treatment, and after all our trouble and efforts we shall have to give it up and resort to the forceps. And of course one such failure will be heralded to all the neighborhood, while the other nine successfully treated will scarcely be spoken of.

This we must expect, and must meet with all the fortitude possible. Perhaps in time we may be able to coin some term to cover our failures that will be as comprehensive and as satisfactory to the public, as is the one so much used by our brethren in the medical profession, heart failure.

GOLD AS A FILLING MATERIAL.*

BY JOHN J. PARKER, D. D. S., CHICAGO, ILL.

I simply intended to continue the discussion of the subject brought up at our December meeting for my theory this evening; but, when I received the yearly programme, I saw that my subject was to be "Gold as a Filling Material."

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*Read before the Hayden Dental Society of Chicago, February 20th, 1893.

However, I may touch upon a point or two not brought out in the discussion referred to in connection with our subject, as the basis of both is the operation of filling cavities in teeth with gold.

The symbol of gold is Au., taken from its Latin name, Aurum. Specific gravity 19:26 to 19:34. It is found in river beds and in quartz rock in its native state, or uncombined with other metals, in nearly all parts of the world, but mostly in such small quantities, and requiring so much time and expense to bring it into shape for the different uses to which we put it that it becomes one of what is known as the precious metals.

It is prepared in several different ways, such as crushing the rock between rollers or hammers and dissolving the gold out with mercury, then squeezing the mercury out and distilling the remainder, leaving the gold, which is refined by the use of acids. Then it is subjected to a series of filtering, heating and acids to purify it. After which the pure gold is hammered out into sheets of different thicknesses, when it is ready to be rolled and cut into small pieces and inserted into the teeth.

Crystal gold is obtained by the electric current on a platinum pole in a solution of chloride of gold, in which are suspended plates of gold. A good idea of how dental gold leaf is prepared may be found in Mitchell's Dental Chemistry, where we find that pure gold may be beaten out so as to cover 650,000 times its original area, showing great malleability.

Its property of cohesion is essential to its use for filling teeth in making them the same shape they were before decay began. To preserve the interproximal spaces, retain the normal size and shape of the jaw and give comfort and satisfaction to the possessor.

As a substance for filling cavities in teeth, everything considered, it is the best known at the present time. Having the qualities of being a good preservative, when well inserted (as it should always be), does not change color, which is not unfavorable, nor its form by molecular attraction as any of the metals used in connection with mercury.

One of its faults is its property of conducting thermal changes; but if it is used rightly, this may be reduced to mere theory.

For instance: A small cavity that does not approach the pulp maysafely be filled with gold without fear of this objection. A large cavity that comes in close relation to the pulp chamber, should never be filled directly, with any metal, for the same reason; but, if a thin sheet of any nonconducting material, preferably gutta-percha, or something of that nature, be first placed over that part of the cavity near to the pulp chamber, the objection is overcome.

If the cavity be large and a retaining groove to anchor the first piece of gold cannot easily be made; a small amount of cement, mixed thinly, can be placed over the bottom or side of the cavity next to the pulp chamber, and while soft, a piece of gold can be placed upon it and left till it hardens, when other pieces of gold can be attached and the filling completed, on a good foundation, which also acts as an insulator.

This is supposing that the filling when completed will have a retaining shape. A filling thus attached to a tooth will often be of service in strengthening frail walls depended on for retention.

The difficulty often found in the insertion of gold in a cavity in a tooth, aside from its position in the mouth, is usually found to be a misshaped cavity. Often this cannot easily be overcome, from the sensitiveness we find just where we wish to make a groove or undercut.

Theoretically, the proper insertion of a small gold filling in an approximal cavity in an incisor, is very easy and simple, as in this case the approximal tooth is always missing, and we have what space our imagination requires; but, practically, we find these cavities where we can only get a side glance at them, and only with great difficulty can we get an exploring instrument where we wish to use a plugger point. Here a separator is required. Either a rubber strip or some one of our mechanical devices. The latter I think better when it can be used to advantage.

When sufficient space is made, we trim the margins and enlarge the cavity to sound tissue, making undercuts where they will do the least harm to the tooth, and the most good to the filling. Gold well packed in all parts of this cavity will make a permanent filling.

"Gold as a filling material," is also very useful, though seldom permanent, in the cavities in our clothing, called pockets, the filling of which we rack our brains and strain our nervous system to accomplish perhaps more than the teeth. For this use we make of gold, or its equivalent; we are here to-night to discuss the best methods of serving our patients to receive the reward our services can command.

Of course, it is often convenient to give the patients the impression that we are simply working for their benefit, but few of us fail to impress them with the idea that the operation when finished is worth something to us, as well as they, and while we must have a dollar's worth of gold in our pocket, for a few cents' worth in their tooth, we should make a tooth, as a compensation for the difference in value of the exchange, a source of satisfaction in appearance, comfort and durability.

Continuing in the line of "gold as a filling material," and when we shall have advanced so as to be able to support the specialist generally in this department, who shall not be required to dirty his hands or clothes by handling flasks or vulcanizer, or cleaning or polishing plates, we will have had time to teach the people that "A stitch in time in this case saves nine" in reality, and that their natural teeth are worth more to them than all the teeth they can buy; they will work to their own advantage and aid us in the preservation of their teeth, and the decrease in plates as substitutes.

If foreign emigration is stopped, or limited to the more intelligent classes, we can teach the American people, to save their teeth, in one generation, so that the man who might follow mechanical dentistry alone would find more employment in the theory of his work than the practice.

At the present time we have laboratories in our large cities where we can send an impression and get a set of teeth made to order, as we would a suit of clothes. If the clothes do not suit the complexion, or exactly fit, they will do anyhow.

A man must see his patient to make a set of teeth to fit in color, shape, position and size.

I have made failures in helping a friend out withplate work, and had others do the same for me to the detriment of all concerned.

Money cannot save the physical life of a person when he is called to go up higher, even when taken in time; but a tooth taken in time can be permanently saved from extraction as long as the party has use for it.

As I understand it, the highest aim of our profession is to save the natural teeth of the coming generation, and thereby give to the American people health and strength they now lose from unmasticated and undigested food.

Can we do this by making a practice of extracting teeth to be substituted by often worthless artificial ones? Is it not better to try to reduce the necessity for these plates than to create a special, separate branch to prolong their use?

If a man gets his bread and butter from this source only, is he not going to keep it going, if he can, until he has enough bread and butter? While if he has something else there is more money in, he is going to try to turn the tide that way. This is practical. Hence, we think the gentleman was not serious when he talked of this new branch of the professional tree so soon to wither from lack of nourishment.

In conclusion, I can hardly agree with the worthy essayist of of our December meeting, and more especially, as he had me on the list for this separate branch of our work which we expect to gradually go out of use. Seems as though he was a little selfish in the use of "gold as a pocket filling material," as well as its use in the teeth, as gold fillings are claimed to be more profitable.

In the past and present generations, those who have held control of our profession have raised it a good many steps toward saving the teeth, and one of the most important ones, is the excellent methods and appliances we now have of preparing and inserting "gold as a filling material."

DENTAL NOMENCLATURE.

BY DR WM. O. KULP, DAVENPORT, IA.

To the Committee on Dental Nomenclature, of the World's Columbian Dental Congress:

In the year 1885, at the session of the American Dental Association, I presented to the committee on nomenclature, a paper describing the nomenclature of the surfaces of the teeth for simple consultation; but, after reading it to them, I was urged by the committee to present it to the association. I was made to believe by the committee that it was the best systematic and descriptive nomenclature of the surfaces of the teeth ever presented to the profession. I have since rearranged and added to it, until now it is much preferable—by comparison to other systems—

than it was before. The system is based upon the outlines of anatomists, so far as they go in their description of the teeth, as to surfaces exposed toward the mesial line of the body, and marginal surfaces exposed toward the brain and soles of the feet. *Our* specialty is like a continuation or an annex to the old structure of medicine and surgery. We must, therefore, have the privilege of coining terms and words suitable to our specialty. Shall they be Greek, Latin or vernacular? I should oppose the adoption of either Latin or Greek per se. We can, however, hardly adopt vernacular systems without utilizing these languages to a greater or less extent. The terms used should be self-explanatory—not misleading or ambiguous. We have the advantage of modern civilization and education to aid us in our search for such terms.

The nomenclature for the surfaces of the teeth, to which I desire to call your attention, is based upon anatomical outlines and Latin and Greek derivatives—anglicised sufficiently to be self-explanatory to all who know the teeth by their present names, viz.:

Incisors, central and lateral (right and left, upper and lower).

Cuspids (right and left, upper and lower).

Bicuspids, first and second (right and left, upper and lower).

Molars, first, second and third (right and left, upper and lower).

I believe the profession the world over name them in this way, or, at least, are familiar with the terms. The mapping of, or subdividing the surfaces of the teeth, is a matter of some importance to the operative dentist, but more to the teacher and student. To them a tooth presents five surfaces, viz.: Labial and buccal, lingual, two proximating and the occluding or grinding surfaces. These surfaces are subdivided both longitudinally and transversely, so that it becomes an easy matter to definitely locate cavities by numbers, on any of the surfaces of the teeth. The transverse division of all teeth is into thirds, beginning with the occluding or grinding surface and ending with the margin of the alveolus and named as follows:

1. Occluding or grinding third. 2. Middle third 3. Cervical third.

Longitudinally the surfaces are divided into 1. Labial or buccal surface. 2 Marginal surface. 3. Proximating surface. 4. Lingual surface. 5. Occluding or grinding surface.

With these outlines we begin with the central incisors, and thus go through the entire set, describing each tooth minutely, the same terms applying to each side of the mesial line (right or left) and upper and lower teeth.

CENTRAL INCISORS.

1. Occluding third. 2. Middle third. 3. Cervical third. 1. Labial surface. 2. Centro-labial margin. 3. Centro-proximal surface. 4. Centro-lingual margin. 5. Lingual surface. 6. Latero-lingual margin. 7. Latero-proximal surface. 8. Latero-labial margin. 9. Occluding surface or inferior margin.

LATERAL INCISORS.

1. Occluding third. 2. Middle third; 3. Cervical third. 1. Labial surface. 2. Centro-labial margin. 3. Centro-proximal surface. 4. Centro-lingual margin. 5. Lingual surface. 6. Cuspo-lingual margin. 7. Cuspo-proximal surface. 8. Cuspo-labial margin. 9. Occluding surface or inferior margin.

CUSPIDS.

1. Occluding third. 2. Middle third. 3. Cervical third. 1. Labial surface. 2. Latero-labial margin. 3. Latero-proximal surface. 4. Latero-lingual margin. 5. Lingual surface. 6. Bicuspo-lingual margin. 7. Bicuspo-proximal surface. 8. Bicuspo-labial margin. 9. Occluding surface or inferior margin.

FIRST BICUSPIDS.

The buccal muscles covering these teeth, and the occluding surfaces being differently shaped, we cannot use the same terms in our description of them, and preserve the text (self-explanatory) so we use the term buccal for labial, and grinding for occluding.

1. Grinding third. 2. Middle third. 3. Cervical third. 1. Buccal surface. 2. Cuspo-buccal margin. 3. Cuspo-proximal surface. 4. Cuspo-lingual margin. 5. Lingual surface. 6. Bicuspo-lingual margin. 7. Bicuspo-proximal surface. 8. Bicuspo-Buccal margin. 9. Grinding surface.

SUBDIVISION OF GRINDING SURFACES.

1. (*a*) Lingual cusp. 2. (*b*) Buccal cusp. 3. (*c*) Bicuspo fissure.

SECOND BICUSPIDS.

1. Grinding thirds. 2. Middle thirds. 3. Cervical third.

1. Buccal surfaces. 2. Bicuspo-buccal margin. 3. Bicuspo-proximal surface. 4. Bicuspo-lingual margin. 5. Lingual surface. 6. Bicuspo-lingual margin. 7. Bicuspo-proximal surface. 8. Molo-buccal margin. 9. Grinding surface.

SUBDIVISION OF GRINDING SURFACE.

1. (*a*) Lingual cusp. 2. (*b*) Buccal cusp. 3. (*c*) Bicuspo-fissure.

FIRST UPPER MOLARS.

1. Grinding third. 2. Middle third. 3. Cervical third.

1. Buccal surfaces. 2. Bicuspo-buccal margins. 3. Bicuspo-proximal surfaces. 4. Bicuspo-lingual margins. 5. Lingual surfaces. 6. Molo-lingual margins. 7. Molo-proximal surfaces. 8. Molo-buccal margins. 9. Grinding surfaces.

SUBDIVISIONS OF GRINDING SURFACES.

1. Anterior buccal cusp. 2. Posterior buccal cusp. 3. Lingual cusp, or prominence. 4. Anterior or central fissure. 4. (*a*) Centro-anterior fissure. 4. (*b*) Centro-buccal fissure. 4. (*c*) Centro-lingual fissure. 5. Posterior, or lingual cross fissure. 5. (*c*) All fissures compounded.

SECOND UPPER MOLARS.

1. Grinding thirds. 2. Middle thirds. 3. Cervical thirds.

1. Buccal surface. 2. Centro-molo-buccal margin. 3. Molo-proximal surface. 4. Centro-molo-lingual margin. 5. Lingual surface. 6. Posterior molo-lingual margin. 7. Third molo-proximal surface. 8. Posterior molo-buccal margin. 9. Grinding surface.

SUBDIVISIONS OF GRINDING SURFACES.

1. Anterior buccal cusp. 2. Posterior buccal cusp. 3. Lingual cusp, or prominence. 4. Central fissure. 4. (*a*) Centro-anterior fissure. 4. (*b*) Centro-buccal fissure. 4. (*c*) Centro-lingual fissure. 5. Posterior lingual cross fissure. 5. (*c*) All fissures compounded.

THIRD UPPER MOLARS.

1. Grinding third. 2. Middle third. 3. Cervical third.

1. Buccal surface. 2. Molo-buccal margins. 3. Molo-proximal surface. 4. Molo-lingual margin. 5. Lingual surface. 6. Posterior surface. 7. Grinding surface.

SUBDIVISION OF GRINDING SURFACES.

1. Anterior buccal cusp. 2. Posterior buccal cusp. 3. Lingual prominence. 4. Central fissure.

The lower molars differing from the upper in their grinding surfaces, need a separate subdivision of this surface.

1. Anterior buccal cusp. 2. Posterior buccal cusp. 3. Anterior lingual cusp. 4. Posterior lingual cusp. 5. Central fissure. 5. (*a*) Centro-anterior fissure. 5. (*b*) Centro-buccal fissure. 5. (*c*) Centro-posterior fissure. 5. (*d*) Centro-lingual fissure. 6. Buccal pit fissure.

The second and third lower molars have the same subdivision.

CAVITY NOTATION.

As all nations are familiar with, and most of them use, the digits from one to ten to express numbers, a system of cavity notation based upon these figures must at once be recognized as international. The system that I have used for some years in my teaching is based upon the numbers from one to ten, making ten distinct and simple cavities in each tooth, each number always occupying the same position in each tooth; so that if the tooth is named and the number referred to, the location of the cavity is at once recognized. Each number or figure has its compounds with other figures, but there is never any necessity to increase the numbers above ten. On the labial, lingual and buccal surfaces we have but one number. If a cavity occupies more than one division of the tooth, it is so designated. As for instance: the No. 1 labial surface of the central incisor may involve the middle and cervical divisions of the tooth. It would then be expressed No. 1 Comp. m\c., if the larger portion of the filling was in the middle third. If the large part was in cervical third, it would be expressed by using c\m. instead of m\c., and so in the same manner on the lingual and buccal surfaces, while on the proximating surfaces, each cavity has its specific number. As we find the greater proportion of the cavities we are called upon to treat located upon these surfaces, their surface numbers are compounded instead of divisions of the teeth.

Notation and location of cavities by figures, upon the surfaces of central incisors (upper and lower, right and left):

1. Labial surface. 2. Cervical third, centro-proximal surface. 3.

Middle third, centro-proximal surface. 4. Occluding third, centro-proximal surface. 5. Occluding or marginal surface. 6. Occluding third, latero-proximal surface. 7. Middle third, latero-proximal surface. 8. Cervical third, latero-proximal surface. 9. Lingual surface. 10. Occluding and middle thirds (No. 3, 4, 5, 6, and 7). Any of these numbers may be compounded with others, When so, all numbers involved in a given cavity should be memtioned, beginning with the number where the larger part of the filling is located. As for instance, a large gold filling, occupying the entire centro-proximal surface of a central incisor; the largest part of the contour being in the occluding third (or No. 4); it would then be expressed as Nos. 4, 3 and 2 Comp., upper central incisor. The same rule governs in all cases, on all teeth.

Cavity notation of Lateral Incisors (upper and lower, right and left).

1. Labial surface. 2. Cervial third, centro-proximal surface. 3. Middle third, centro-proximal surface. 4. Occluding third, centro-proximal surface. 5. Occluding or marginal surface. 6. Occluding third, cuspo-proximal surface. 7. Middle third, cuspo-proximal surface. 8. Cervical third, cuspo-proximal surface. 9. Lingual surface. 10. Occluding and middle thirds compounded.

Notation of the cavities on Cuspids (upper and lower, right and left).

1. Labial surface. 2. Cervical third, latero-proximal surface. 3. Middle third, latero-proximal surface. 4. Occluding third, latero-proximal surface. 5. Occluding surface. 6. Occluding third, bicuspo-proximal surface. 7. Middle third, biscuspo-proximal surface. 8. Cervical third, bicuspo-proximal surface. 9. Lingual surface. 10. Occluding and middle thirds compounded.

First Bicuspids, (upper and lower, right and left).

1. Buccal service. 2. Cervical third cuspo-proximal surface. 3. Middle third, cuspo-proximal surface. 4. Grinding third, cuspo-proximal surface. 5. Bi-cuspo fissure. 6. Grinding third, bicuspo proximal surface. 7. Middle third, bicuspo-proximal surface. 8. Cervical third, bicuspo-proximal surface. 9. Lingual surface. 10. Entire grinding third involved.

Notation of cavities in 2d bicuspids, (upper and lower, right and left).

1. Buccal surface. 2. Cervical third, bicuspo-proximal surface. 3. Middle third, bicuspo-proximal surface. 4. Grinding third, bicuspo-proximal surface. 5. Bicuspo fissure. 6. Grinding third, molo-proximal surface. 7. Middle third, molo-proximal surface. 8. Cervical third, molo-proximal surface. 9. Lingual surface. 10. Entire grinding third.

Cavity notation of the first upper molars.

1. Buccal surface. 2. Cervical third, bicuspo-proximal surface. 3. Middle third, bicuspo-proximal surface. 4. Grinding third, bicuspo-proximal surface. 5. Centro-fissure grinding surface. 5. (*a*) Centro-anterior fissure. 5. (*b*) Centro-buccal fissure. 5. (*l*) Centro-lingual fissure. 5. (*p*) Posterior lingual cross fissure. 6. Grinding third, molo-proximal surface. 7. Middle third, molo-proximal surface. 8. Cervical third, molo-proximal service. 9. Lingual surface. 10. Compounded fissures, entire grinding third involved.

Notation of cavities of the second molars, (upper).

1. Buccal surface. 2. Cervical third, molo-proximal surface. 3. Middle third, molo-proximal surface. 4. Grinding third, molo-proximal surface. 5. Centro-fissure grinding surface. 5. (*a*) Centro-anterior fissure, 5. (*b*) Centro-buccal fissure. 5. (*l*) Centro-buccal fissure. 5. (*p*) Posterior (or lingual cross) fissure. 6. Grinding third, third molo-proximal surface. 7. Middle third, third molo-proximal surface. 8. Cervical third, third molo-proximal surface. 9. Lingual surface. 10. Entire grinding surface.

Notation of cavities on the surfaces of the third molars (upper).

1. Buccal surface. 2. Cervical third, molo-proximal surface. 3. Middle third, molo-proximal surface. 4. Grinding third, molo proximal surface. 5. Centro-fissure grinding surface. 6. Grinding third, posterior surface. 7. Middle third, posterior surface. 8. Cervical third, posterior surface. 9. Lingual surface. 10. Entire grinding surface.

Notation of cavities of first molars (lower):

1. Buccal surface (or pit fissure). 2. Cervical third bicuspo-proximal surface. 3. Middle third bicuspo-proximal surface. 4. Grinding third bicuspo-proximal surface. 5. Centro-fissure grinding surface. 5. (*a*) Centro-anterior fissure grinding surface. 5. (*b*) Centro-buccal fissure grinding surface. 5. (*p*) Centro-posterior fissure. 5. (*l*) Centro-lingual fissure. 5. (*c*) Compound, all fissures on grinding surface involved. 6. Grinding third molo-

proximal surface. 7. Middle third molo-proximal surface. 8. Cervical third molo-proximal surface. 9. Lingual surface. 10. Grinding third, compounding of entire fissure surface.

Notation of second molar (lower):

1. Buccal surface (or pit fissure). 2. Cervical third, molo-proximal surface. 3. Middle third, molo-proximal surface. 4. Grinding third, molo-proximal surface. 5. Centro-fissure grinding surface. 5. (*a*) Centro-anterior fissure grinding surface. 5. (*b*) Centro-buccal fissure, grinding surface. 5. (*p*) Centro posterior fissure, grinding surface. 5. (*l*) Centro-lingual fissure, grinding surface. 6. Grinding third molo-proximal surface. 7. Middle third molo-proximal surface. 8. Cervical third molo-proximal surface. 9. Lingual surface. Grinding third, compounding fissure of grinding surface.

Notation of cavities of third lower molar:

1. Buccal surface (pit fissure). 2. Cervical third molo-proximal surface. 3. Middle third molo-proximal surface. 4. Grinding third molo-proximal surface. 5. Centro-fissure, grinding surface. 5. (*a*) Centro-anterior fissure, grinding surface. 5. (*b*) Centro-buccal fissure, grinding surface. 5. (*c*) Centro-posterior fissure, grinding surface. 5. (*l*) Centro-lingual fissure, grinding surface. 5. (*c*) Compounding of all fissures, grinding surface. 6. Grinding third, posterior surface. 7. Middle third, posterior surface. 8. Cervical third, posterior surface. 9. Lingual surface. 10. Entire grinding surface.

ARGUMENT.

Anatomists have drawn an imaginary line longitudinally through the body, separating it into right and left; calling this line the "Median Line;" naming all surfaces exposed toward this line "mesial surfaces," and the surfaces to the opposite distal surfaces. In reference to the teeth, these surfaces are understood by anatomists and surgeons to be those *we* call lingual and buccal surfaces. So also have they established a rule (nomenclature if you please) to call all surfaces exposed toward the brain "Superior Marginal" surfaces, while those exposed toward the soles of the feet, the "Inferior Marginal" surfaces.

With reference to the teeth, the cutting edges and the grinding surfaces of the lower jaw would be understood to be the superior marginal surface, while the same surfaces in the upper jaw would be the inferior marginal surface. The terms used in defining more minutely certain portions of the approximating surfaces of the teeth, such as approximating lingual margin, approximating labial margin and the proximating surfaces themselves, can be used in forming a nomenclature of the teeth for use in operative dentistry, in which the outlines of anatomists, as understood and established, need not be ignored, but taken as a basis upon which to build the structure. As our specialty is comparatively young, we must be permitted to coin new terms to suit our uses. The question then arises, shall these terms be based upon the Latin and Greek, or shall they be wholly English? And why not? Especially the operative and prothetic (dental art) branches. Why should we borrow our terms from dead or foreign languages? We may appropriately use words with Latin or Greek derivatives, for the English is largely composed of derivatives from other languages. But to compel us to submit to the use of Latin or Greek terms, in which to name the surfaces and operations upon the teeth seems absurd. We need no terms that are mysterious to the general public. The requirement of international terms cannot have much weight, as a greater proportion of our profession all over the world have learned and can understand English, than those who have learned and can understand Latin and Greek. Already we see English in the curriculum of all well-governed institutions of learning of all countries. Some of us will live to see the day when all men of business and education, as well as the great majority of the common people, will know English as well as any other language. Then why should new specialties use "old timber" any more than is absolutely essential for the structure? The nomenclature of a profession are the signboards of its intelligence and training. Mysterious, high-sounding words and phrases have about had their day. The general public are becoming too intelligent to be courted into a reverence and awe of a profession by them.

The terms to be used in dentistry in the future, in my opinion, should be largely in the English language, and as far as possible, should be self-explanatory. Based upon the foundation of older specialties only as far as we come into contact with them. There should be a thorough weeding out of all the old, ambiguous and incongruous terms, and new ones substituted that are in thorough harmony with the position already indicated. It should cover the whole ground.

The attempt to base a system of nomenclature of the surfaces of the teeth upon the terms "Mesial" and "Distal" is not in anatomical harmony, therefore a self-evident failure. The central incisor is really the only tooth of all the set that these terms would be applicable. For here we find the centro-proximal surfaces are exposed toward the mesial line, while the latero-proximal surfaces are farthest from this line, therefore correct. The lateral incisors being the second tooth in the arch, do not retain the same position, therefore the centro-proximal surfaces of lateral incisors are not always towards the mesial line. Neither are the cuspo-proximal surfaces the most distant from the line; therefore cannot be properly called the mesial and distal surfaces. The same is true with the cuspids; while in the bicuspids and molars the mesial surface would be the lingual, and the distal the buccal surface. Not at all as intended by the *framers* of this system. As they intend to convey to the student that by mesial surface of a bicuspid and bicuspo-proximal surfaces of a second bi-cuspid; and by the term distal, is meant the bicuspo and molo-proximal surfaces of the same teeth, and so on with the molars, all misleading to students and anatomists. If you should refer to the mesial surface of a molar before anatomists they would at once infer that you meant the surface toward the mesial line, which would be the lingual surface. While the distal surface would be understood to be the buccal.

Now let us look at the other system. That of

ANTERIOR AND POSTERIOR SURFACES.

Anterior means toward the orifice (or opening) of the mouth, while posterior means that surface farthest from the opening (or orifice). Then, in the central incisor, the anterior surface would be the labial, while the posterior would be the lingual or palatine. This is true also with the lateral incisors, and partially true with the cuspid, while in the central, the meaning is, that anterior surface is the approximating surfaces, i. e., centro-proximal, while the latero-proximal surfaces are meant to be the posterior. When we get back to the bicuspids and molars, this system is nearly correct; but, because of the inaccuracy of the system with the front teeth, it cannot be accepted as perfect or faultless. There is still a "looking for something better."

We want a system of nomenclature that every term used will explain itself, so that as soon as we learn the names of the teeth we can understand the term used in describing the surface of any teeth.

While we do not ignore the landmarks of the anatomists, we simply begin where they leave off and build up a structure wholly for the benefit of the operative dentist, who recognizes five surfaces on each of the teeth. These should be named so that the term used, as far as possible, is self-explanatory to the minds of all dentists.

In the case of figures for cavity notation, a language is presented that all nations can understand, and, with the mapping of the surfaces of the teeth I present herewith, I imagine that any one at all familiar with the teeth will have very little difficulty in mastering the subject.

The boundary lines of simple and compound cavities is very much simplified by this system, and by adding the French system of denoting the depth of decay, viz.:

First degree, when it is superficial.

Second degree, when decay extends into the dentine.

Third degree, when the pulp is exposed.

Fourth degree, when it becomes a pulp case.

Bearing in mind the figures locating the cavities, the different stages of decay can be easily referred to, so that any one can be easily understood.

Take for example: No. 3, central incisor, decay second degree.

Cavity may be opened at either centro-labial or lingual margins, chosing the frailest—always preferring lingual. The frail portion of the labial margin should be trimmed off, and beveled, so that the filling material will hug close to it; while the contouring must be mainly done here, so that the filling will approximate the opposite tooth instead of the margins of the cavity. While the lingual margin should have a concaved surface, in order that it may be self-cleansing, the manner of shaping the cavity and making the retaining angle or points can be left to the operator's ingenuity.

Whenever two divisions of a tooth are involved, it becomes a compound cavity—as for example, take the above described cavity, No. 3. It may involve No. 2 also—it would be expressed by two-thirds compound; or the decay may extend over the entire centro-proximal surface two thirds and four compound, right or left central—simply naming the tooth and the numbers involved will at once locate the cavity and its extent, to any one at all familiar with this method.

Take another example, that of a bicuspid. Where we find decay extending over both proximal surfaces, involving the fissure, we would then have Nos. 2, 3, 4, 5, 6, 7 and 8 compounded. Directions can be given how to trim the cuspo and bicuspo-lingual margins so that the filling material may protect these margins, leaving the formation of the cavity to the operator or teacher.

The above serving simply as examples, in the same manner all the cavities can be explained, and minute directions given as to their compounds and boundary lines, without any confusion or ambiguity.

COPPER AMALGAM.

ONE WAY TO MAKE IT—ITS COST. BY DR. A. C. HEWETT, CHICAGO, ILL.

Procure of some drug or electrical supply house a Crofoot Gravity Battery. Jar 6x8 in. is sufficient for office use.

a. Glass jar 6x8 in.

b. Zinc with hanger and connector.

c. Copper with connecting wire.

A four-inch Wedgwood mortar is large enough. A copper ladle 4 inches in diameter by 1½ inches depth, or an iron ladle 4½x2¾ inches, with detachable handle. A Bunsen burner, I need not add, for to every well-equipped office it is a requisite.

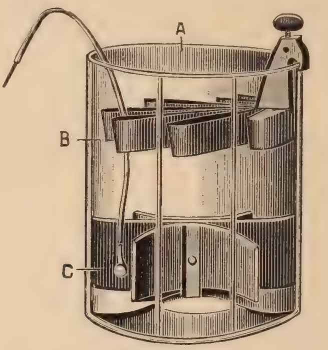
For the battery, mortar, ladle and burner, three dollars is a liberal estimate of cost.

Two pounds of redistilled mercury is sufficient to successfully work the battery; five pounds is better. Its cost is from one dollar to one dollar ten cents per pound.

Three to five pounds of sulphate of copper, costing not over ten cents per pound, can be obtained at any drug store.

A couple of ounces of sulphuric acid, at a cost of scarcely more than the vial containing it, is a convenience rather than a necessity.

To set up the battery "scribe" the lower edges of the copper flanges, "*c*," so they will fit the bottom of the glass, "*a*." Dilute a portion of the sulphuric acid, and with it wash the copper clean. Apply small globules of mercury to the copper surfaces, covering them well in with the mercury. Pour the residue of mercury into the glass jar, and adjust the copper to the bottom, so that the flanges shall rest equally deep in the mercury. Hang the zinc, "*b*," on the rim of the glass jar, "crowfoot" inside; pass the free end of the connecting wire through the hole under the set screw of zinc, and turn down the screw. Fill the glass jar with water sufficiently to submerge the "crowfoot" of the zinc. Drop a few crystals of the sulphate of copper into the jar—a tablespoonful, more or less. Lastly, pour about one-half ounce of sulphuric acid into the jar, and the battery will soon begin its work.



As the sulphate of copper dissolves and the zinc corrodes, two liquids (inaccurately speaking) will be formed in the jar; the heavier one copper, gravitating to the bottom, and the lighter one (sulphate of zinc) floating. Hence the name, gravity battery.

At intervals of about three days, and as soon as any crystals appear at the top of the jar, about one-third of the liquid should be drawn off by a syphon, using small rubber or lead tubing for the purpose, and the jar refilled with water. Keep adding the sulphate of copper as it dissolves, and the amalgam forms in the mercury and on the copper.

If these directions are intelligently followed, in three or four weeks there will be formed at least a pound of amalgam, leaving sufficient mercury for the production of another pound or two.

To secure and prepare the amalgam, pour off the liquid from the jar, care being taken not to spill the mercury. Disconnect the zinc and copper. Lift the copper from the jar and set it in the mortar. Remove the crystals carefully from the copper wings, being careful not to peel off scales of unamalgamated copper ; only remove crystals that are thoroughly covered. Flood and wash the mercury in the jar with water, also grind and wash the crystals in the mortar. Considerable washing and grinding is demanded. Pour the mercury from the jar over the amalgam in the mortar, and again grind and wash. At this stage an ounce of sulphuric acid poured into the mortar, on mercury and amalgam, with thorough grinding, will aid in cleansing the mass, but *all acid* must be washed out. Not a trace left to act upon tooth structure, and no trace of sulphate of zinc must remain. When sufficiently clean, pour the mass from the mortar into a napkin, or better, a square of cotton drilling large enough for a strainer, laid across the mouth of the battery jar. Strain and wring the water and mercury into the jar. The residuum will be copper amalgam and free mercury. Again grind and wash the mass, and squeeze out more mercury. To sufficiently free the crystals from mercury after the last squeezing, place the nugget into the ladle and heat over the Bunsen burner gradually, till the moisture is driven off and the mass becomes softened. Care must be taken not to heat till the mercury commences to be driven off in vapor, and the mass discolored. After heating, place in the mortar, which should be dry and warm, and again grind and squeeze. Repeat the heating, grinding and squeezing till the crystals are sufficiently fine and dry. Lastly, lay the mass on a sheet of strong paper, itself on a table or other smooth surface, and roll, pat and spread the amalgam into a sheet about one-eighth of an inch in thickness. With a knife drawn across the paper, cut the amalgam into squares or diamonds, as preferred. Cover from dust and leave on the paper to harden and dry. If on trial it is too dry or too moist, reheating and grinding and mercury added or expelled will make it to suit.

Care must be taken in heating, or a brown dust (oxidized mercury) will appear to soil the mass, blacken the fingers in working, and render the amalgam porous, and darkening to tooth structure.

The zinc, "*b*," should occasionally be taken out, and a black oxide scraped and washed away.

Like all chemical processes, this requires care, cleanliness and intelligence. Any competent assistant can easily follow these directions. Thus prepared, a true copper amalgam results, which has no "spheroidal" or peripatetic tendencies. It will, *if properly used*, stay where placed, without "cupping," "washing" or perceptible "shrinking." It will not strain tooth structure, nor will it discolor contiguous gold fillings. As an antiseptical preservative of tooth structure, it is not surpassed by any other amalgam, or any (miscalled) "alloy" yet attainable. If what a writer said in the July *Review* is true—"According to the present standard of knowledge we can't do without amalgam" (*Dental Review*, July, 1893. page 626)—then why not have the best?

The writer is frequently importuned to sell his amalgam. It is in no sense "his copper amalgam." He is not the inventor, and cannot engage in manufacturing. He is a busy dentist, strongly attached to the use of the amalgam as he now makes it, giving it a secondary place as compared to gold. He is strongly attached to his profession, and enthusiastic in the hope and belief of higher standards and better results.

To the members of the profession he proffers this small tribute.

PROCEEDINGS OF SOCIETIES.

Chicago Dental Society.

Kindergarten Hall, June 6, 1893.

Meeting was called to order by Vice President J. H. Woolley, at 8 P. M.

After reading of Dr. Johnson's paper, the discussion was opened by Dr. F. R. Ross, as follows:

Dr. Ross: It would seem to be almost unnecessary for me to attempt to say anything on this paper, for the description is complete, and to criticise it I certainly am not egotistical enough to do, and further, I do not believe that anything that I could say would add to the interest of the paper or to the edification of the society. I am a thorough believer in that course and manner of filling teeth and have adopted it and followed it for years. Further than that, as I say, I do not know that I can say anything that would be of any interest to the society, and I know I do not wish to criticise the paper, because it is beyond criticism in my judgment.

Dr. Dennis: I have never had very much experience with the noncohesive gold in the form of cylinders. My experience has been more extensive in using noncohesive gold in the semi-cohesive state. That is, not entirely cohesive and not entirely noncohesive. My method in most cases has been in the use of tin and gold and tin alone, so that I cannot say very much in regard to the use of the noncohesive gold strictly as such. One point that Dr. Johnson has brought up that struck me very forcibly in regard to the noncohesive cylinders is the fact that unless they are thoroughly forced home into all the grooves and depressions of the cavity they certainly must be faulty in some respects. There is a certain bridge over some of the rules; in that case we all know that fillings fail. It is impossible, it seems to me, with noncohesive gold or with any other gold, to force it home into the grooves of a cavity if it is rolled up into a large mass, as we have it very frequently or nearly always in the forms of cylinders in the noncohesive method of filling. It seems to me to be one of the faults of noncohesive gold if used in the forms of cylinders. In some of the cavities that I have had the fortune to investigate I found that those undercuts and grooves have not been filled up thoroughly, so that the fillings have been leaky. Of course decay has set in after the leak. There have been a great many fillings of noncohesive gold put in by expert operators and they have successfully preserved teeth. We see them constantly coming up, even at this late day, but we do find besides where the undercuts have been more than ordinarily deep, that the fillings do leak and that instead of a firmly condensed filling, under the exploring instrument we find it soft, and we find that is not only soft, but we find that the dentine is soft and decayed as well.

Dr. Crouse: The method described in the paper, with some modification or addition, has been my practice for twenty-five years. I would differ from the paper in this respect, however, that I would use more noncohesive cylinders before I would add cohesive gold. In order to get noncohesive cylinders the gold must be made noncohesive, and as all pure gold is cohesive, and all the foil that comes into our hands is cohesive, it is necessary, before making the cylinders, to make the gold noncohesive. To do this I have adopted the plan prescribed by Dr. Black a few years ago—that of putting an open book into a drawer with ammonia. I usually take the book out of the envelope and place it, with some cotton saturated with ammonia, into the same drawer and close it. Without this precaution the cylinders will be too harsh to adapt themselves to the inequalities of the cavity, used in such large masses. To make the cylinders, take a sheet of No. 3 foil, fold it evenly until you get it to a ribbon the width of which is the length you want, then roll on an ordinary nerve broach, filed three cornered to a peak, which makes the cylinders I use. They can be rolled to any solidity desired in this way. The cylinders should be a little larger than the depth of the cavity at the cervical margin. This form of filling has a great advantage in proximal cavities, and especially in large ones that are far up on the cervical margin, even where the cavities extend under the margin of the gum. There are cavities that it is impossible to get a direct blow with a mallet. I think any practitioner can bring them to his mind in a minute. It is necessary sometimes to force the gum and dam out of the way, to get your margin clear, and the cylinders described above are very adaptable in just such cases. If made the proper length they will force the gum and dam back and this simplifies the operation very much. A precaution in the use of cylinders is to leave a place for the next one each time—that is, not to try to condense each cylinder too much, but to depend upon the next one to wedge the last one to its place. It is often necessary to hold this mass of gold to one side to keep it from rocking, until you get the mass secured and the anchorage of the cavity. Then, before condensing the cylinders, which we will say have half filled the large cavity, add some No. 10 cohesive gold, forcing it into this mass so that when you get the cylinders well condensed you can go on and add the cohesive gold and finish your filling. I would use No. 10 as cohesive as I could make it, and before I condense the cylinders much I would drive a layer of No. 10 gold, folded about four times and cut into strips, and start with that and get that under any instrument, and then drive the whole mass home. I say No. 10—I would just as soon have No. 60, cut into strips. Some old-timers will remember that along in '68 or '71-2-3, there was a great rage for heavy gold foil. I think there were three years that I never bought any gold under No. 60. I see some of those fillings now from time to time—never made better ones, never saw better ones than were made then, but, fellow practitioners, it takes too much time to make fillings of this kind of gold. Your vitality and that of your patient is saved by the use of noncohesive gold—that is the argument for it. I sometimes wonder how we made some of the fillings that I see from time to time, that were made of heavy gold. At the time I speak of, almost all of the prominent operators of the country were using the No. 60 and 120 gold for filling. Some of the fillings that were made in those days surprise me, as they are almost as perfect now as can be made, and have stood the test of time better, I sometimes think, than any other form of gold could. Now I hardly ever start a proximal cavity of any considerable size without starting the cervical margin with cylinders. Many times I start with one big cylinder that will fill the upper portion clear across, then drive my cohesive gold into it. Now, another admirable place for noncohesive gold, in connection with cohesive gold, is in large cavities of molars—crown cavities, if you please--simple enough to fill, but where you want to do it rapidly, have the cylinders made right and to set on the ends, and then drive in the cohesive gold and finish. You can fill a tooth in that way in fifteen minutes that would take an hour otherwise, and not have a better filling. Thus you have saved your patient and yourself. That is the key. In that class of cases you use the wedge process. You drive the cylinders apart and then drive more into them.

It takes some study and it cannot be described here in a talk how to arrange each cylinder and how to leave the mass for the next piece. A beginner may fail, but don't let that failure lead you to abandon the method, because it will pay you to follow it up in your life practice. The main thing is to keep a place for the next piece until you get it secured to the mass. This form of operation, however, that I speak of in the crown of a molar, for instance, is not as practical if the walls are not strong, because you use the strength of those walls when driving the gold to its place, a great deal more than you would in using the semicohesive or cohesive gold.

I have prepared my own pellets and my own cylinders and use my cohesive gold, as I say, in the heavier forms, cut into strips. The cylinders that we get in different sizes are nice and they save time in the matter of preparing your gold, but every time I take up a pellet of gold, I know just what the size of it is exactly; I have the division of my gold box so that I can take and make gold blocks, one-half sheets, quarter sheets, eighth sheets down to the very small pellets. I do not know that there is anything else that I can add to this. It is an old method of operation and it was adopted before we had the rubber dam. In those days the difficult part of an operation, in packing the gold filling, and in keeping the cavity dry.

It is the old form of filling, when we would take a wedge of wood, drive it between two teeth, driving the gum out of the way and shutting the moisture back at that point, and then with the use of napkins and paper the moisture is shut out as long as possible, and it was in those days that non-cohesive gold had its greatest advantage, in that a perfect filling could be made quicker. And I think now this form of operation with noncohesive gold should be used more than it is and certainly should not be abandoned, as it has an advantage that no practitioner can afford to be without in his practice.

Dr. Mariner: I do not know that I have anything to say only to endorse what Dr. Crouse has said. For four years I used heavy foil, and I might mention, I think it was the best work I ever did. I see some of it occasionally now, and I am surprised to know that I did the work. I have been asked a great many times why I abandoned the use of it. Dr. Crouse has answered that admirably—it takes too much time. Too much of the endurance of the patient and the operator too. But I believe, as Dr. Crouse thinks, that we can make just as good filling with cohesive gold if you take time enough. That is what we would like, to use enough of it to make good fillings in a shorter time.

Dr. Noyes: When I first learned to fill teeth I did so with cohesive foil and a good many of the first years of my practice nothing else was used. My preceptor used noncohesive foil before many dentists knew how to use any other, and still continues to use it more or less, but at the time he taught me he was an almost exclusive cohesive foil worker. I presume that I had the same experience that most young men do, and the simplicity, the definiteness, the accuracy, which characterize the use of cohesive foil as distinguished from noncohesive captivated me. I could see a perfectly clear, straight road to make a good operation, beginning in detail at the retaining points which were fixed carefully and perfectly and proceeding from that to the end, every step being clearly finished before another one was taken. There was nothing of the mass work, with its possible covering up of uncertainties, and it was only after years of experience and a good deal of hammering at in the societies that I began to use noncohesive gold, but I have used it for a great many years past to the very greatest advantage. But little needs to be said in addition to what has been spoken in regard to the methods, except a little word of caution in relation particularly to the handling of masses of noncohesive gold in the method described by Dr. Crouse. The essayist is very careful to describe the process in such close detail as to leave little opportunity for misapprehension or danger on that point; but it should never be forgotten that it is a difficult matter and an uncertain matter to condense very large masses of gold in any form, cohesive or noncohesive, so that the condensation will be complete and homogeneous throughout, and the adaptation perfect of the portion farthest from where the force is applied. Now if that were not evident. theoretically and logically, it is evident practically and to our observation in hundreds of fillings that are made on that plan which we find failing on that account. Of course a successful and careful operator will not have those failures, but the men who listen to the description and then go and try to do it—a great many of them do have such failures, and it is a fact that I have often been obliged to take out and renew grinding surface fillings in teeth with the strongest walls, which were made just exactly on that plan. In these cases the condensation into corners and undercuts has been so imperfect as to make the whole filling useless after a very short time. Now the lesson of this is plain. The mass of noncohesive gold must not be so large as to prevent the certainty of condensation to the very bottom and to the portion of the mass farthest from where the force is applied. The danger, of course, is greater in proportion as the walls are irregular or the undercuts deep.

Another thing needs to be watched most carefully in commencing fillings with noncohesive gold. We do not begin in a sharply defined retaining pit, or a corner or groove so deep and sharp as to answer the same end as a retaining pit in which you can condense a small portion of gold thoroughly and have it a fixed point upon which to build. The handling of noncohesive gold is not upon that plan, and in laying foundations with it we should never forget that it is very easy for them to do some sliding about unless they are very closely watched. The first portions placed must be held in some way until there is a thorough and trustworthy locking across from one side of the cavity to the other, and as I say, they need very close watching or they will slide and move upon the wall of the cavity, to a degree which will prevent an adaptation afterward, and possibly without dislodging the mass so as to be perceived, and compel you to begin over again. Those two things are of the utmost consequence in handling noncohesive gold.

Dr. Cattell: I thought I would get my say in before the "old-timers." But I am very glad that somebody did write a paper on this very subject. It is one that I have been interested in for twelve years. I commenced my practice with cohesive foil, noncohesive foil was not spoken well of or its use encouraged in the infirmary or institution where I learned how to pack gold, and I worked along with the cohesive gold for a year or two, did my best and made many failures, until I was shown a better way and learned to use noncohesive foil. I want to place myself on record as being an advocate of noncohesive foil in the positions in which it has been spoken of as being used in the paper to-night, and I not only firmly believe in it, but am a very strong advocate of it. I cannot see that damage can be done to margins with noncohesive foil that can be and is done by the use of the cohesive, especially the cervical border, or gingival margin. I am also a believer in the combination of noncohesive foil and tin. But the fact of the paper being written and presented here to-night pleases me much. It is the first paper of the kind that I ever listened to, and I have never read anything on the point as concise and clear, neither have I heard any public discussion as there has been given here to-night on noncohesive foil. There is a form of instrument that was not spoken of that I have used and liked—I learned to use it from others, and that is the single line foot-plugger, the plugger that is so often used in forcing that little cohesive cylinder down into the noncohesive gold; it being a single line, it is therefore a wedge in shape. We must remember always, that in packing noncohesive foil the wedge principle is used and we should not forget that little point even in the use of cohesive foil. Gold can be wedged apart or spread on its surface if we use a plugger that is wedge-shaped. A wire bent in a semicircle and the free ends placed upon a flat or level surface, a blow on the highest point of the curve with a mallet will tend to spread the free ends of the wire. It seems to me that in packing gold if we strike a plugger upon the surface of the gold impacted or partially so, there is a tendency to a spreading of the gold at its base or any point between the point of pressure and the base of that filling. If we will remember that, we will not use so broad a plugger, as we would if we failed to carry that idea well in our mind. The principle is the more applicable of course in the noncohesive gold. I am glad the profession is using more noncohesive gold than it has done in the immediate past. Its use has not been taught as much in the schools as it should be, yet it is taught to some extent. I remember a few years ago when many were laughed at for still using noncohesive gold, but now I am glad to see it coming back into more general use.

Dr. Harlan: I was very much interested in this paper. I should like to have had the essayist detail the filling of two or three classes of cavities besides the cavity in a bicuspid. One of the class of cavities that might very profitably be filled with noncohesive gold is a buccal cavity. That is the place where not much force of mastication is found in the mouth and buccal cavities in molars particularly can be filled much better, in my opinion, with noncohesive gold than with cohesive gold and they can be finished with a very small quantity of cohesive gold. The trouble with nearly all operations made with gold in teeth is that not enough time is spent in the introduction and consolidation of the gold. The objection that too much time is consumed in the use of heavy gold is a good one. I used to fill a great many teeth with number 60 and 120 gold, in '69 and '70, when I had little filling to do, and for some little time afterward, and I think the very best fillings made after the Arthur System of mutilation of teeth was introduced, was made with heavy gold; a great deal of it was planished on the surfaces after the cavities had been filled in a certain way, and that was abandoned I believe in consequence of the general discomfort of these wide separations. I have not heard anything about the Rotation method of filling teeth with noncohesive gold, and I do not think it has taken much hold in the United States. That also I think is due to the fact that it requires too much time, and the uncertainty as to the result is so great in the mind of the operator that he does not practice it. The Rotation filling of cavities in the crowns of molars particularly, perhaps might be used with advantage by a good many operators. I am curious to know how the essayist fills a cavity in a molar tooth, in the grinding surface of a molar, combining noncohesive and cohesive gold. I am also curious to know how the essayist fills the proximal cavities in certain sizes, combining noncohesive and cohesive gold, especially when those fillings are where it is not intended that the operation shall be visible when the labial surfaces of the teeth are looked at. That is one of the things where the most delicate manipulation is required of every operator, especially in the prevention of dark joints, or a leaky filling. Then again when it becomes necessary to restore the cusp, or a portion of the cusp, of a bicuspid, or a cuspid tooth, so that the gold will be adapted to the beveled edge of a cavity where it is exposed to view, that is one of the places where I think noncohesive gold should almost invariably be used for that adaptation, but the question of how to manipulate the gold so that only the noncohesive will come in contact with that border is one that requires a great deal of skill and discrimination and judgment. I believe that every man here who has not practiced the method of combining noncohesive and cohesive gold against such surfaces, ought to go to work and plant a dozen or so of teeth in plaster of Paris and make operations of that kind and see what beautiful results he can accomplish after a little time in that direction. Those are things that are not at all new; but the subject of filling teeth with gold is one that is of absorbing interest for every man, and the method of manipulation and condensation, and the method of introducing gold and fixing it to the tooth so that it will stand the ordinary wear and tear of mastication, is one that ought to engage your everyday thoughts.

Dr. Royce: I see by the programme I hold that I am expected to read a paper in November, at which time I think I can give my views in regard to gold filling better than I can now. I would simply say that Dr. Cattell struck the keynote of gold work. With him I believe it is our ability to spread gold that enables us to preserve teeth with it.

I believe eventually we will go to work at gold filling with mechanical ideas in our mind, and work upon the spreading theory, with cohesive or noncohesive gold, whichever will answer our purpose best.

Dr. Ottofy: I have been in the habit of using cohesive gold in conjunction with noncohesive, in a manner similar to that described by the essayist. The question regarding the spreading quality of gold is one that should be definitely settled. I think that gold will go only where it is put. If there is anything in the theory that it spreads, it is opposed to what I believe to be the truth; that is, that the gold will crawl up, whether it is cohesive or noncohesive, upon pressure it will follow the sides of the instrument. As a matter of fact, I doubt that we ever use noncohesive gold, or rather, that the gold remains noncohesive during and after condensation in the cavity. There is a certain amount of heat which will make gold cohesive. You can make noncohesive gold cohesive if you burnish it a sufficient length of time. Does it remain noncohesive? Can we handle it and retain its noncohesiveness? are unanswered questions. As a general rule, operators say that they do much like the late Dr. Allport, that is, they make gold cohesive slightly, at one end of a ribbon, strip or pellet. Gold is a good conductor of heat, and to hold a piece of gold, even only for an instant into a hot alcohol flame, will make it cohesive throughout. I like to use for the cervical margin, what we generally understand as noncohesive gold; I do not like to introduce it in the manner described by the essayist, that is, to begin at one wall and then at the other wall, and then connect the two. I prefer to use as large a piece of gold at that point as I can comfortably handle. I seldom depend on gold being held in place for any great length of time by the aid of another instrument, and as a rule make the seat of the filling considerably broader than the portion of the cavity immediately beyond it, so that the gold is soon wedged in and I can let go of it. I do not like to be filling a cavity and have more than one instrument in my hands. The rotating method is a good one. It is, however, confined to a limited number of cases, cavities on the crown surfaces of the teeth, with margins absolutely round, not irregular. It is a simple task and a rapid one, to make a filling by burnishing gold into such cavity by means of a common burnisher—used in the engine or by hand—what we call absolutely noncohesive gold. Having pressed this gold into the irregularities and the undercuts, you have the walls of a cavity practically covered with that character of gold. Then you can go on and wedge into that, on the principle described, a mass of cohesive gold. I would feel well repaid for going to dental meetings and listening time and again to these discussions on gold, if I could learn something more reliable regarding the "spreading" or "crawling" qualities of gold, Dr. Noyes: What I said was not in the least degree in opposition to what Dr. Crouse has said. I simply wish to say that the failure of the cases to which I referred is due to a lack of close and intelligent adaptation of means to ends. If these noncohesive cylinders in smooth layers are laid against a straight, smooth wall without irregularities or undercuts, and then wedged in every direction into a space into which they are confined, so that they cannot escape, there is no serious difficulty about making both a sufficient condensation and a perfect adaptation. The cases which I refer to as failing were those in which the straight cylinder was put against a place where there was an undercut, and the end of the cylinder was left standing out above the undercut and it was not sufficiently bent and crowded to get in under it.

Dr. Hewett: I took up the Tribune to-day and saw that Dr. Johnson was going to write a paper upon this subject and thought I would come and hear him, especially as a very courteous invitation was extended to visitors. I am every glad I did. I was fortunate enough to hear the remark that, as the essayist has put it, "There never has been a paper written on this subject," which I think is true. I regret that the essayist hurried himself so much on his essay, but he said enough to show that he regarded filling with gold, cohesive and noncohesive, as governed by a certain underlying principle. There were certain things in his mind when he wrote that paper, or rather lying back of the paper, when he was building his fillings, that he had to accomplish. First, to seal against moisture and air and acids next; to secure the filling against tipping; and next, to make it solid enough to resist the occlusion necessary, and he went to work like the true mechanic that he has shown himself to be to-night and wrought out a system of dentistry so far as filling teeth with gold is concerned, which is complete in itself, and I undertake to say that if the method is followed by the members good results will follow every time. Let the others intelligently follow his direction and equally good results will follow. Now the different parties that have spoken, following him in this discussion to-night, have shown that they are equally mechanics; that they understand these underlying principles requisite to make a good filling. Dr. Crouse, considering himself an old-timer, yet follows those principles that are underlying each operation. Some of the gentlemen here have taught us about the spreading quality of gold. I think that I remember in my study of philosophy that one of the qualities of gold was its malleability. Gold was given as being malleable—that is another name for spreading. Dr. Johnson in his method of filling the cavity utilizes that malleability, or that spreading, and that binding together of the gold and the impinging upon the walls to hold it solidly, and so with each one that has talked here to-hight. Dr. Noyes emphasized that particularly, although he did not design it, I think, but I will be bound, if you will stand by Dr. Noyes and see him fill a cavity with gold, he will show you just as plainly as can be that the gold under his hand is malleable, and that the metal spreads under his instrument. There are so many things, so many questions that I would like to see elucidated that I would go a long way to hear Dr. Johnson read another paper on this subject—the shape of the plugger, whether flat-faced or round faced, whether serations like needle points, whether serrated from the central point outward, whether serrated like a succession of uniform blades in one direction, the size of the pluggers, their shape, whether to be used under hand pressure, or whether to be used with a light mallet or heavy mallet—all these questions come up for elucidation, but the time of the essayist was so brief, of course, he could not by any possibility touch on all. I was exceedingly interested in his paper ; it was well worth coming down to hear, also the discussions. I thank you for calling me, though I do not think I have added anything to what was said.

DR. BROPHY: I was much pleased with the paper that was read by Dr. Johnson. I am also pleased with the remarks that have been made by the numerous venerable gentlemen who have preceded me. I desire to speak particularly of the instruments to be used in inserting gold. Sometimes I make use of a somewhat homely comparison when speaking of operations in dentistry, by saying that when a farmer goes out in his field to pitch hay, he is not likely to make use of a hoe. I think with that preface I can say, that if a gentleman is going to make use of noncohesive gold, that he is not likely to make use of a broad foot-shaped plugger. He should use a wedge-shaped plugger to carry the gold towards the wall of the cavity. And if he is going to use cohesive gold, he can obtain the best results by the use of a fine serrated, broad plugger, in proportion to the size of the cavity. If a dentist is going to fill a large cavity, his plugger ought to be correspondingly large; if he wants to fill a small cavity, his plugger ought to be suitable for such a cavity, and his instruments should be selected in some general forms and various sizes of those forms. By doing this he will be able to accomplish that which he desires. much more rapidly and satisfactorily and skillfully than he can by using pluggers made without any special reference to their size and form. It is painful to see a good operator take a little fine pointed plugger and plug away, using cohesive gold, and taking an hour and a half to do what he ought to accomplish in half an hour if he uses proper instruments and proper gold, and pluggers of the proper size. I think some one might write a paper on hand instruments used in condensing gold, and I think it ought to be very profitable, and ought to call forth as full a discussion as the one to-night.

Let me go back to 1864. The first dentist I ever saw came to my father's house when I was a boy. He filled our teeth and he used nothing but noncohesive gold, and in later years I heard Dr. Allport speak of the method of procedure on the part of the ship's caulkers; they make use of their long ropes of hemp and a mallet, and they drive it into the cracks in sidewalks, and into the seams in ships, and that was just the principle employed by this dentist when I was a boy. He made use of ropes of gold that was not in any sense cohesive, and he would work that rope into the cavity, and if he needed any more he added another, etc. That was my first observation of filling teeth. I have seen Dr. Spaulding, of St. Louis, use noncohesive foil in that way—having a long rope, beginning at one end and putting it in until that was used up, then adding another, until the cavity was quite full. Nothing has been said on other form of gold than foil this evening. I have found in many cases crystalloid gold a good thing to start with, for crystalloid gold will spread and will stay in shape better than any other gold at the beginning of a filling; if it is carried in and forced in place it will stay there. I am specially pleased to find really no one advocating the use of retaining pits in cavities described. Proximal cavities have furnished abundant space and room for starting fillings without retaining pits. Retaining pits sometimes, where you require great strength, may be required, but rarely. The most painful step in the preparation of the cavity is the making of a retaining pit, and besides, it endangers the vitality of the pulp, and I think the time has come when their use must be abandoned, and I am glad to see it is to a very great extent.

Dr. Johnson: I have only a few words to say. I want to emphasize one point especially; the paper was not written with the idea of saying anything new at all; it was simply intended to formulate things that have been taught for years. I do not remember ever hearing a paper that made a definite statement of the different steps in a methodical system of uniting noncohesive and cohesive gold in the same cavity.

In regard to what Dr. Harlan said about the necessity for detailing methods for other cavities, I simply have the same excuse that I made in the paper—that I was under the impression that there was to be another paper here to-night, and I considered it necessary to make this paper very brief. To give in detail any one system of combining noncohesive and cohesive gold in different classes of cavities would keep you here nearly all night. We know all these things in our minds, but to set them down on a piece of paper so that a student will understand them thoroughly and can take that paper and follow out the instructions in regard to any method, requires a very definite statement of the different steps. Papers should be prepared on these subjects.

Regular meeting July 11th, 1893, Dr. J. W. Wassall, President, in the chair.

Dr. Frank H. Gardiner contributed a paper entitled, "Capping Pulps," which was read by the Secretary, Dr. L. L. Davis, in the absence of the author.

Dr. J. N. Crouse was called upon to open the discussion. He said: I believe every one here knows my treatment of exposed pulps, and my belief in the capping of pulps, and the faith I have in it; so I do not think I can contribute anything new on the subject. I can, perhaps, reiterate what I have said heretofore on the subject, and give some instances that have come under my observation from time to time of pulps capped. The first thing in the case of an exposed pulp is diagnosis, to know whether it is exposed or not. The most difficult thing is to find out whether it is in a healthy condition or not. I know of one test that can be relied upon always. If portions of the dentine of a tooth should be sensitive to the excavator, give off healthy sensation, as I call it, then

I consider that a fit pulp to cap regardless of age, for in a younger subject it is more likely to live than in an old person where the pulp is small. I have been capping pulps in Chicago for twenty-five years, and I have a record of every pulp I have capped in that time. I do not know where all of them are. I do not know how many are alive. This record enables me when a patient appears at my office to tell whether or not, at some time previously, I capped a pulp for him, and whether there was any reflex pain about the head. I am also able to take my record and find out the condition of the mouth, and under what circumstances I capped the pulp and filled the cavity.

The most difficult part of dentistry in my opinion is the diagnosing of some cases of reflex neuralgia or reflex pains. I have a patient on hand that has been under treatment for three or four weeks for whom I capped a pulp some seven years ago. I opened up the tooth, and discovered an upper molar which indicated tenderness to knocking, and which was a little oversensitive to cold or heat. There was enough pain to cause me to remove an amalgam filling that had been in for twenty years. I found under that upper margin some decay, but not a great deal. On opening into the cavity I found ossification of the pulp of that tooth. I have been working at it to get all the pulp tissue destroyed. It is difficult to get into the roots. The patient is forty-five years old. In that mouth I have three capped pulps. In regard to the treatment. If the tooth has never ached, while excavating I should keep the cavity saturated with carbolic acid while I am preparing it. I would remove all of the decayed portion directly over the pulp. I would invariably use oxychloride of zinc for capping pulps, and would fill immediately unless I had some contraindication. If I had a tooth that did not give off sensation, I should hesitate to cap the pulp. I should expect it was not a healthy pulp, if the tubuli of the tooth did not give off sensation, and that we had better destroy the pulp and fill the roots. I know in this particular I stand in the minority, not only in this society but in the dental profession. With careful observation and carefully kept records, I know of no practice so satisfactory to me.

When oxyphosphate of zinc came out first we thought we had something good for capping pulps that would not irritate the tissues, and I think the failures with oxyphosphate of zinc have caused many young men to quit capping pulps altogether. I know of nothing under which a pulp is more certain to die than that. In doing bridge work, if you cut a tooth down so as to get rid of sensitiveness, if you fill the cap with oxyphosphate of zinc, you are sure to have a dead pulp under it unless you cook the albumen thoroughly, and I think that is the reason why it is a failure. It does not cook the albumin, while oxychloride of zinc does.

I will relate an experience I had yesterday. A boy was in my chair two years ago with a twelve year molar decayed. He is now fourteen years of age. The tooth was aching. I put the dam on and filled it. I applied carbolic acid freely; I did not prepare the cavity thoroughly—I mean by that not removing as much of the decay as I would otherwise, and filled it after capping the pulp with oxychloride of zinc. I found my amalgam filling was pretty well worn out. I removed the capping, found the dentine perfectly solid, and the tooth gave off sensation. I did not put on a cap the second time. Ossific matter was thrown out. Of course, this case was a very favorable one, it being in a young subject.

A patient came to me in 1871, with a molar tooth aching. At that time I had unbounded faith in the capping of pulps, and I capped the pulp of that tooth. I had refilled the tooth, and the dentine was sensitive. Less than a year ago it broke down, so I put a gold crown on it and the pulp lived.

These are cases under my eye. They are fair specimens of practice. I could cite some cases not nearly so favorable. I have capped pulps that are going to live, and I consider it a delicate operation to cap a pulp properly, in applying the cap not to cause too much pressure, and in getting the cap so that it will not be disturbed by the force of packing gold. I do not know what else I can say on this subject, except I have had some trouble with capping pulps, have been obliged to remove fillings, and in some cases have had alveolar abscesses, but not often. I find sometimes a tooth gives trouble, and that the pulp dies under capping, still that does not make me abandon the practice.

Dr. C. N. Johnson: In regard to the condition of the tooth of the boy spoken of, you say you did not remove all of the decalcified dentine; that you left some over the pulp; that the boy returned to you and you found the decalcified dentine hardened.

Dr. Crouse: I removed the decay with the anxiety to see what was in there and found, as soon as I struck it, the hardest kind of dentine, and I knew that the pulp was exposed. Dr. Dean, when he was living, was one of the skeptics on pulp capping. A patient came into his office with an exposed pulp. He made it bleed; he put a cap on it. Years after—I do not remember the exact time—the tooth broke off and he was going to fill it. He started to cut the tooth off, and in doing so found ossific matter in it—the pulp had receded. He sent for Dr. Cushing and myself to come over to his office to see that tooth. He was so surprised at the result, that he published the case in *The Dental Cosmos.* This case shows that such things take place, but not always. It is an encouraging feature of pulp capping.

DR. GARRETT NEWKIRK: I do not think there is anything left for me to say on this subject. Dr. Gardiner's paper was very short and to the point. I admire Dr. Gardiner's method of going straight at a thing, and quitting when he is through. I think the paper, along with the remarks of Dr. Crouse, has covered the subject quite completely. There has been a great deal of argument *pro* and *con* for a good many years, and we learn that the greatest thing in connection with it is diagnosis; that if a pulp is in a condition favorable for capping, we can cap it with a reasonable probability of success. The great trouble has been that pulps have been capped where the sensitiveness of the dentine, of which Dr. Crouse has spoken, did not exist. It often happens that a tooth seems to be sensitive because pressure is exerted rather toward the center of the pulp, whereas if the excavator were carried away from the pulp into the dentine, we will find perhaps no sensation at all, and we will know that the pulp is not in a condition favorable for capping. In a healthy tooth there is normal sensitiveness in the dentine somewhat removed from the pulp and when pressure is exerted in a direction from it.

DR. JOHNSON: How would you diagnose a case in which the dentine is not sensitive?

DR. NEWKIRK: Such cases are extremely rare. There are very few cases in which we will not find sensation, and where the patient will not be conscious of the excavator. They are exceedingly rare in my practice. I can nearly always find sensation somewhere.

DR. JOHNSON: The matter of sensitiveness of dentine is not a reliable guide in all cases. We find all degrees of sensibility in dentine just the same as we find a tooth extremely sensitive when you touch the dentine. It is a hypersensitive tooth, and in that condition the pulp is not favorable for capping until the sensitive state is relieved. The healthier the tooth is the less sensation there is.

Dr. H. A. COSTNER: About twenty years ago, when I commenced the practice of dentistry, a man was considered a heretic if he did not cap every pulp under almost every circumstance. I started out with that idea to practice, but I do not think so now. I do not believe in capping pulps except in certain cases, and they are very rare where there is a good deal of exposure of the pulp. A great many people complain of toothache when the pulp is not actually exposed, and it requires very great discrimination to tell when, and when it is not exposed. The best rule I have found, and one that has never failed me, is to have the patient bite on it. It is the best practice in every case to devitalize it. I know that you can cap a nerve and it lasts sometimes a number of years, but it is liable to hurt and to ache at any time. If you devitalize the nerve in the first place, you will find it more successful and satisfactory to both yourself and the patient, and then you will have no trouble in getting into the root. Where I am certain the pulp is exposed, I devitalize it, and I believe it is the best practice.

Dr. R. B. YULLER: What do you fill the roots with?

Dr. COSTNER: Tin and gold.

Dr. GOODRICH, of Phœnix, Arizona (by invitation)—I have very little to say in regard to capping nerves or pulps. My experience has been similar to that of those who have spoken. I think it is very difficult at times to tell whether a nerve is exposed, or whether the tooth is sensitive from some disease, notwithstanding the pulp may not be entirely exposed. It occurred to me, while Dr. Crouse was speaking of the case of the boy, that it might have been possible that the nerve was not exposed, although the doctor says he made a thorough diagnosis of the case. I have found in my practice cases where I thought the nerve was exposed, but afterward found they were not. Where a nerve is thoroughly exposed, and especially if the tooth is aching, I should cap it; but generally I have very little confidence in the capping of pulps.

Dr. T. W. BROPHY: The remarks made by Dr. Newkirk in regard to the importance of diagnosis will apply to everything. I will amend what he said, and state that the most important of all things in the treatment of disease is to arrive at a correct diagnosis. I do not think any one will doubt the advantages of preserving and maintaining in a state of life and health a pulp, especially in childhood, youth and early manhood, but later in life the preservation of a tooth pulp is not so important, especially after a person has passed the age of sixty. When a pulp is really exposed and bleeds, and has been in such a state of discomfort as to keep the patient awake at night for several nights, I think the best course to pursue is to devitalize it, and in the majority of cases if the operator does not devitalize it it will die a natural death. Sometimes pulps may be preserved by capping; their lives may be maintained for a considerable length of time, but I venture to say that there has been more discomfort, more sleepless nights on the part of people who have suffered from dental diseases from exposed pulp after the age of fifty, that have received treatment at all, than from any other condition pertaining to dentistry. I have seen patients who have suffered after pulps had been capped, and finally in their distress demand removal of the teeth, and many of those pulps that had been thus capped, when the capping was removed gave off a considerable quantity of pus which was the result of inflammation.

There is a good deal of difference between an exposed pulp which is in a state of inflammation, and one which is not in a state of inflammation. There is a great deal of difference in the condition of the part when the pulp has been exposed, as it sometimes occurs during an operation, and a difference in the condition of a pulp which is exposed during the progress of caries. The one which is exposed by an accident on part of an operator is in a better condition to be preserved by capping than one exposed during the progress of decay. The one that has been exposed by the progress of disease generally, I think, takes on inflammation before the patient applies to a dentist for treatment. In such a case, I think the pulp will die, not always, but in the majority of cases. If there has been pain for three or four days; if the congestion has been sufficient to cause disturbance of the whole structure of the pulp, the pulp will generally die. In young subjects where the foramen of a tooth is quite large, and where the circulation may be easily maintained, it is good practice to try to preserve a tooth pulp by capping. If, however, the patient has advanced beyond middle life and the same condition exists, I think it is better to devitalize the pulp.

The treatment that the essayist has proposed has been successful in the hands of a great many skilled operators. He has not proposed oxyphosphate of zinc in a tooth pulp, but oxysulphate of zinc, and at a subsequent sitting oxyphosphate of zinc is placed over the oxysulphate of zinc. That is a different state of affairs. I do not think any of the previous speakers mentioned that the essayist proposes to put oxysulphate of zinc on a tooth pulp or copal ether varnish to protect the pulp, to make it impossible for the fluids to penetrate to the pulp. The oxysulphate of zinc is not an irritant, while oxyphosphate of zinc is to some extent, because it contains phosphoric acid, and the oxychloride of zinc is a more powerful irritant than either of the other zinc preparations. If there is anything that is especially desired in the preservation of pulp tissue that is exposed, it is the kind of treatment that will not produce irritation, that will be soothing to the pulp. The pulp should be carefully handled, should not be irritated in the slightest degree. Dr. Black has shown conclusively in his experiments with the pulp, that the odontoblasts have been destroyed by the use of caustics, and that after suppuration or anything that will disturb the surface, the pulp will generally die. I think he goes so far as to say in nearly all cases it will die, which is quite reverse to the experience of Dr. Crouse, who is a careful observer. I have a great deal of confidence in Dr. Crouse's skill as an operator and in his judgment; and taking the cases as I have seen them, and my observations are confirmatory of the statements that have been made, that pulps that have been exposed, congested and painful, generally die. In nearly all cases of tooth pulps where suppuration has occurred, where the sloughing surface is great, such pulps will die. So certain am I of it, that in my practice I do not attempt, if sloughing has occurred, to preserve the tooth pulp.

Our old patriarch, Dr. Atkinson, went so far as to say in his enthusiasm that a tooth pulp might die in part; that a pulp damaged might slough, and if the remaining portion in the roots was in a state of health it should be capped. There are undoubtedly some members here who have heard Dr. Atkinson use an expression something like this: "When the little red eyes of that portion remaining in the canal of an upper molar, when appearances show there is circulation there, it is better to cap these than to devitalize them, and fill the roots." This was going to an extreme, and I could not endorse such teachings. The preservation of part of a pulp is not in my judgment sound teaching. I believe where a slough occurs, or where there is extensive inflammation and extreme pain, that our best service to the patient is to devitalize the pulp. I am certain many a young man has lost a great deal of practice, and caused his patients an immense amount of suffering by attempting to preserve pulps which might better have been destroyed, not only for the comfort of his patients, but for his reputation.

Dr. Crouse: Have you ever capped pulps with oxychloride of zinc?

Dr. Brophy: Yes, about twenty years ago. Dr. Atkinson at that time advocated the use of oxychloride of zinc. Believing as I did in those days that his knowledge of such matters as well as that of others was correct, I did it, but I abandoned it, and the first paper I ever wrote and read before a dental society was on this subject in which I took the opposite ground. Dr. Crouse will remember that I was the only member of the society that took the opposite view, and I was scored right and left for it. I venture to say, that if you consult the Transactions of the Illinois State Dental Society you will find ninety per cent of the members, and those who are here do not cap pulps with oxychloride of zinc, but 95 per cent of them at that time did if they capped them at all. In the treatment for freshened surfaces we want antiseptics that are not irritants, and one of the greatest efforts on part of our most talented investigators and pathologists in general medicine and surgery is to discover and successfully make use of germicides and antiseptics which will stop putrefaction without irritation.

Dr. Crouse: Don't you know that surgeons are coming to consider carbolic acid as the best antiseptic?

Dr. Brophy: But they do not use it in the escharotic form.

Dr. Crouse: Didn't they abandon it?

Dr. Brophy: Not to my knowledge. It is a fact that the most distinguished gynecologist that ever lived in this city, Dr. William H. Byford, always used carbolic acid. I have been with him many a time during his operations and he always used it, even up to the time of his death; and his son, a distinguished gynecologist, uses it to-day. Boracic acid is used for the same purpose, and there are other agents used for a similar purpose, among which is bichloride of mercury; but there are objections to the latter, not on account of the potency of the agent, but on account of its destructive effect on instruments and its toxic effect upon the patient. A weak solution of the agent may be used successfully. Carbolic acid is a good thing to apply when a pulp is not exposed, but I would not apply carbolic acid to an exposed pulp if I expected to save it.

Dr. L. L. DAVIS: It was my fortune to study under a gentleman who believed in pulp capping, and who even went so far as to amputate pulps, capping the portions remaining, afterward filling the remainder of the root canals. In my early practice I endeavored to follow that plan. Within the last two weeks I have had a good example of the result under such conditions. I had treated a patient with an exposed pulp for some time, and later removed a portion of the pulp in the crown of the tooth, which was a lower molar; finally being in a good condition for capping, as I thought, I capped very carefully and saw the patient at intervals for three months. He then went west and had not seen a dentist from that time (1885) until he came to me recently. The tooth is there and it is filled, but that is all you can say of it for it could have been removed with the fingers. I followed as closely and carefully as possible the teaching I had received, and felt confident at the time the gentleman went west that the tooth was in good condition but time tells the story not only in cases of pulps that are exposed, but in those that are not exposed and yet capped.

Considerable discussion has arisen with reference to diagnosing the condition of a tooth whose pulp should be capped. The only time I cap a pulp that is exposed, or very nearly so, is when I want it to die quietly and slowly, where I cannot see the patient frequently, or in the case of a child; then I seal the tooth with some medicament beneath the stopping, and send the patient away for a few weeks or months, telling him to come back when the tooth is a little tender. That is the kind of capping I do at the present time. In the case of teeth that are to stand the wear and tear of mastication, that are going to be of the greatest service, where you have exposure or aching for a lengthened period, the proper thing to do is to cut away freely, apply a devitalizing agent, and kill the pulp. I am to-day treating a devitalized tooth that I capped in 1887 for a young lady. She is now sixteen years of age. It is a six year molar. There was no exposure, but simply a broad shallow cavity that required the breaking down of all the enamel of the masticating surface. Pressure upon the softened dentine caused an unpleasant sensation, yet she had suffered no pain whatever. Using a solution of chloro-percha in the first place, I afterward flowed oxyphosphate of cement over it. The patient had been seen at different times and the cement filling seemed to be in good condition, so did not disturb it. Recently she came to have a gold filling inserted in the tooth. I drilled into the cement, began to prepare the cavity for the gold filling; but my curiosity was aroused as to how much the dentine had become recalcified, how it had hardened, and how it looked under the capping. So I thought it was a good chance to find out something. I removed the cap and found everything in apparently perfect condition, but in pressing a little hard with a fine pointed instrument I plunged into the pulp cavity and out came fluid, the odor of which was anything but pleasant. The tooth had not given the slightest trouble and yet the pulp was dead. There had never been any exposure or aching. I am fully convinced the proper thing to do is to devitalize pulps when they are exposed.

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EDITOR: A. W. HARLAN, M. D., D. D. S.

ASSOCIATE EDITORS:

C. N. JOHNSON, L. D. S., D. D. S. T. L. GILMER, M. D., D. D. S.

WELCOME TO CHICAGO.

One element of success in a dental meeting is to have the visiting members feel at home in the place where the meeting is being held. In view of this we have a word of welcome for our friends who are attending the Congress this month. We, of Chicago, are determined that you shall be as one of us while you are here. We want you to feel as if you had known us always. Consider that we are willingly your slaves during the week of the Congress. We will be on hand "at the drop of the hat" whenever anything is wanted. Please remember this.

Chicago is proverbial for hospitality, and we hope to sustain the reputation at this time. We may not have so much dignity as other places—in fact, some one quite recently has said that we have not—but we trust that we shall not severely shock the sensibilities of any of our visitors. You must consider that you are in Chicago, where true dignity is not construed to consist in walking up street with head so high that the nose is on a parallel with the tops of buildings. We get down to the level of happy humanity in Chicago, and yet we honestly believe we know how to be gentlemen. We want to get acquainted with the whole world of dentistry this month. We would like a formal introduction at first, if convenient, but if not, we are content to grasp you impulsively by the hand without calling you by your second name. If you are not personally acquainted with many of the Chicago dentists, do not hesitate to make yourselves known. We shall be glad to see you.

Remember there is room for all. Chicago is a great deal larger than it looks on the maps, and the maps do not ignore it. The city may still have a flavor of the "wild and woolly west" about it, but if it has we shall be obliged to you if you will point it out to us when you have been here awhile.

We do not claim to be perfect, but we think we have one of the elements of perfection—we are aware of our weaknesses, and we are willing to learn. That was why we were so anxious to have a Dental Congress held here. Give us all of your latest and best thought pertaining to the science and art of dentistry, and we will try to do credit to your teaching. Possibly we *may* be able to teach you something in return. In any event we shall do our best to make the Congress a success, and we hope to send you away with a sense of time well spent among us, and with a warm place in your heart for Chicago.

Again, we bid you welcome. C. N. J.

EXTRACTION OF TEETH FOR NECROSIS.

The report of the correspondent of the State Society of New York, contains the opinions of several prominent men in the profession, as to the advisability, or otherwise, of extracting teeth in case of necrosis.

The questions asked are as follows :

(*a*) Where necrosis is present, or suspected, with high temperature and extended inflammation, would you extract the teeth promptly, or would you reduce the temperature and inflammation first ?

(*b*) There being no high temperature, but inflammation and necrosis, would you remove the tooth and adjacent teeth, or would you retain them, operating upon the necrotic tissues only ?

In answer to these questions a diversity of opinion was expressed, the majority, as we sum them up, appearing to favor extraction. It would seem to us that in the consideration of this question an important factor in the case was overlooked. No distinction was made between pulpless, unhealthy teeth, and teeth having living pulps with healthy peridental membrane, *i. e.*, healthy before the present trouble. It goes without saying that a tooth or root should be removed if it has a putrescent pulp canal discharging, or capable of discharging infectious matter into the tissues at the apex. Its removal is imperative, and the operation should take place as soon as the dentist discovers it, whether there is extensive inflammation, high temperature, or otherwise. It is a menace to the tissues around it, and should be got rid of at once. A tooth or root in this condition is an irritant. The pulp canal is a tiny sewer draining its pollution into the apical space. This is self-evident to all, but is it at all evident to any one that a tooth which may stand next in the arch to this one, but which has a living healthy pulp with no source of infection in its structure, should be considered an irritant and condemned to the forceps?

These necrotic conditions are little understood as yet, but we can see no valid reason for removing a sound, healthy tooth to check necrosis, unless it has become so loose that it forms a mechanical irritant. Cases have been reported of a somewhat extensive necrosis of one of the alveolar plates, with considerable loosening of the teeth, where reparation of the injury has been accomplished, and the teeth saved.

Another plea against progressive extraction is the fact that it leaves, in the open sockets of the alveolus, a larger area exposed to infection. The argument that we seldom have deleterious results following the numberless extractions that occur every day does not prove anything in such a case as this, for here we have already a disease set up in the process, and it is reasonable to assume that a disease once started will be more likely to spread to the freshly exposed sockets, than would a disease to start in such a socket when the surroundings are normal. This is especially true if necrosis be due to infection.

We can see no logical reason for the early extraction of sound or healthy teeth, and while we do not claim that progressive extraction means progressive necrosis, yet some of the clinical records would almost seem to prove this.

No one line of treatment can be laid down for the management of these cases. The practitioner must use his wits as to the requirements of each case. In the early stages of inflammation, free lancing to relieve the congestion is beneficial. Pus should be evacuated whenever and wherever found, and not allowed to collect in pockets. After suppuration has begun, it is often better to watch and wait. Keep the parts well cared for with an antiseptic and direct attention to general hygiene. In case any specific taint can be discovered—and this should be sought for more carefully than it usually is—constitutional treatment accordingly is called for. Extract sound teeth when they become so loose and elongated as to be irritating, but not before.

C. N. J.

THE DENTAL CONGRESS.

The time anxiously looked for has arrived. The congress after many months of labor and preparation by the executive and other committees, has been opened with great eclat. There are present many of the best men from all countries, enough to make it a World's Congress in fact as well as in name. There can be no question about the effect on the dental constituency of the deliberations of the congress—they will be permanent and lasting.

It is unfortunate that following the illtimed leadership of a dentist in England, many were kept away. It is their loss as well as ours. A visit to Chicago, the most wonderful city of modern or ancient times, would have recompensed any one for the time and money spent; added to this is the dental congress, the greatest of its kind ever held in the world. What more could be wished for by a dentist of the nineteenth century than to be a participant? Other congresses may be held, in other portions of the world, but none will have to be subjected to the criticisms, mostly unfriendly, that this congress has been the target for. We are passing through a transition period, the outcome of which we cannot predict, which will land dental surgery high and dry as a profession, or leave it as an insignificant part of the whole healing art. *Quien sabe.*

"NO AMERICAN NEED APPLY."

The idea that Americans as Americans should be shut out of foreign countries, in the exercise of the profession of dental surgery is on the increase. At present it is impossible to secure a foothold in any portion of Europe as a dentist, except on a pretext that you are something else than a dentist.

Whether this is due to our faulty system of education, or due to a desire to shut out competition, we are unable to judge. In any event, we do not care to say what we think on the subject. The facts are, that at present there are many former residents of the United States now in practice in Germany, Russia, Turkey, Austria, Switzerland, Belgium, France, Great Britain, Italy, Scandinavia and elsewhere in foreign lands, but the number will not be increased very soon, unless the proposed resident of those countries passes through the course of study peculiar to the country in which he desires to locate. As a means of preventing immigration this is a very good plan, but as it may be viewed in other lights we think the *method* of exclusion may be questioned. Recently it was decided by the most influential dental society in Europe that it would not send delegates to the Dental Congress, because there were a few statements in a circular issued by the World's Congress Auxillary, of the World's Columbian Exposition that did not suit the æsthetic soul of a Mr. Smith-Turner. (It might be well here to inquire who this Mr. Smith-Turner is, or was, but no recent encyclopedia being at hand, we can only say that he was once the president of the British dental association, and while occupying that position did his utmost to squelch one of the brightest and most energetic members of that body, who was then and is now engaged in a work, the character of which stamps him as truly philanthropic and a most persistent advocate of the cause of the poor and down-trodden). This Mr. Smith-Turner, ex-president, ex-visitor to the United States, ex-member of nearly everything in Britain—but not ex-tinct—did the following we suppose as a little recreation to his great and throbbing brain:

> Mr. McLeod proposed that the association should send the President and four members to the Columbian Dental Congress. Mr. Smith-Turner moved that the association should not send delegates. He said he doubted whether any country would agree to be represented at the conference of a body of gentlemen who held views such as those stated in a circular which had been issued in the United States. The circular read, "The history of modern dentistry is covered by a period of two generations, and yet it has advanced from the rude operations of the practice by blacksmiths and barbers to one of the most scientific and exact of the specialties of the healing art. Scientific dentistry had its birth in the United States of America. This country has the proud distinction of having organized the first school for dentists, and the establishment of the first periodical journal devoted to the interests of dentistry, while many of the most useful appliances in scientific goods have originated on this side of the Atlantic." Although the circular had been withdrawn and those who issued it had apologized, yet it was impossible for him under the circumstances to agree to a delegation being

sent to the congress. The amendment was carried, only three members voting for the resolution.—*The Birmingham Daily Gazette.*

After the statement that the authors of the circular had apologized for issuing it (which is false) he hies himself away to London and by the arts of the politician prevents—that's the word—those who were disposed to come over and be fed and catered to from coming in an official capacity to the congress. Is it possible that America erred in not offering an honorary presidency to this sensitive plant? Who knows? We suppose that ere long he will cancel his subscription to every *English* Journal that reprints an article first published in America. This too, too sensitive heather will most likely fade and droop, unless it is fed by things known and certified to be truly and only British. Such senseless work as Mr. Smith-Turner has been engaged in, on the pretense that it is for the best interests of the British Dental Association is too transparent to need much comment; but what little he deserves he will get from time to time as we can spare the space to do it in.

DOMESTIC CORRESPONDENCE.

Letter from the South.

To the Editor of the Dental Review :

Dear Sir :—I am constrained to sit down and cry out, Oh, my profession, what of thee ! One cause of this exclamation is the reading of the following : "The Commercial Club, of Birmingham, has taken hold of the matter and will establish a dental college in the city."

Just think of it. A dental college inaugurated and fostered by a commercial organization, an organization which has for its object the building up of the commercial interests of the city. How low are we sinking in educational lines. This, if it shows one thing, shows that the Birmingham College is not only not needed, but to support it a commercial interest is attached to it. I do not know but that this is really taking the mask off of college enterprises and showing them up in their true light: money making or commercial schemes.

The object of the Birmingham College being commercial, it can never reach the professional standard. It will be looked upon as representing so much capital to bring to the city of Birmingham, so many dollars dividend. The matriculates will pay them money, the professors will get it; they in turn will spend it and so it will go.

This is hardly as bad as another college in Alabama. At Bridgeport, a land company has started one. The plats for lot sales will tell the public "to come and purchase a home. We have established a dental college and will guarantee to do your dental work at cost of materials." Oh, my profession, what of thee. Your institutions of learning are to be directed by land companies and commercial clubs. Your graduates are to have only the commercial idea implanted in them, the high, noble and sacredness of their calling is to be subordinated. The plowshare and the pruning hook are to be beaten into forceps. The mountain still is to be turned in rubber boilers. The cobbler's sign will not read, "Old shoes to mend. But come and let me pull and bile for you a set, my friend."

While Alabama is to have two, Atlanta will call it even, for she will hold this fall to the wayfaring boy, come, come and pay your money and take your choice. One did not afford professorships enough, so to satisfy the ambition of those who yearn to teach the young the noble art. Those who feel that they are called to the position of teacher. Those who feel pulsing through their veins a desire to do something for their profession and nothing for themselves. Those who will make a sacrifice to engage in the calling of teacher. Oh, my profession, what of thee! Hast thou become so simple that any can teach. Hast thou decided to seek followers rather than they seek thee.

Will you persuade this boy
Who has stood at the plow all day,
That you can show him a better way,
One in which by the sweat of his brow,
He will not toil as he does at the plow;
Will you tell him his calling's a disgrace,
That you will fix for him an easier place,
That you will on him doctor confer,
And that to him the people will defer
Not because of his wisdom or rate,
But simply because he can bile a rubber plate.
Oh, my profession, with you I'll not cavil,
For I perceive you are going to the devil;

You are going with a double fox trot,
And will carry with you professors by the lot;
After you have gone, we'll regenerate,
And build a good foundation at a slower gait.

DOUBLE DOOLITTLE S.

I forgot to tell you that I saw not long since where one of the new professors of Atlanta in getting an article up at a penny a line, was introduced as professor of prehistoric dentistry. Now, sir, just let Chicago shut up. She's way behind. Just think of it, a professor of prehistoric dentistry. Oh, my profession, what of thee!

D. D. S.

FOREIGN CORRESPONDENCE.

LETTER FROM LONDON.

To the Editor of the Dental Review:

DEAR SIR:—Having promised you a letter, should I during my peregrination note anything bearing upon dentistry that might prove interesting to your readers, I will try and fulfill my obligation by presenting to you some impressions received while on this side. Dentistry here has among its many exponents those who extract teeth in connection with their barber shops and drug stores, the latter not infrequently being the headquarters of the tout for some local dentist when artificial teeth are required. At these places heaps of teeth of the working classes may be seen piled up in their windows, more, I imagine, as monuments to their dextrous manipulation of clumsy instruments, than to their knowledge of the fact that more than one-half of the teeth so displayed might have easily been saved.

Then we see the "oldest," the "original," and those who represent the various institutions, each of which has a designation that is almost invariably the reverse of the ability found back of the show case, although in many instances their methods are *quite original*, and certainly require no registration to secure to their posessors the protection afforded by copyright.

The chemist—*cum*—dentist is a peculiar institution, who may, prior to the passing of the dental act, have been a chemist's assistant, and as such, possibly have extracted some teeth. He took advantage of the registration clause as a speculation, and who to-day has as good a right to proclaim himself a dentist as the most qualified man. His absurd position will be pointed out later on.

We find in the provinces many of the brightest lights of the profession who are untrammeled by the conventionalities that hedge in their apparently more favored brethren of the larger cities, whose theoretical nimbus not infrequently becomes so onerous to themselves that, while it prevents them from doing the best thing possible in a conservative way for their patients, it still leaves them sufficient time to persistently endeavor to attach themselves as a tail to an unwilling profession, the medical, to wit. I have found the broadest views and ideas, the greatest receptive desire, and the greatest cordiality among the provincial men, and I should imagine they will eventually prove the men upon whom the dentistry of this country will have to rely for its advancement and proper presentation to the public. The foregoing is best illustrated by the action lately taken by the British Medical Council, based upon a testimonial and statement drawn up and supplemented by those who are grossly ignorant of the subject upon which they would treat, or who, by a play upon words, have promoted a state of affairs that will not shine with an undimmed brilliancy in the history of English dentistry, it being a retrogressive instead of a progressive action on the part of those who have assumed the position of legislative dictators of the dental profession here. While the medical council have partly acceded to their request, the best evidence we have of the importance attached to these memorialists by the powers that be, is, none of them are, or ever have been, allowed a place upon the council, thereby strongly suggesting that as authorities upon dental matters they occupy a place only in their own estimation. The best endorsement as to the value of this motion, made as it was, at the end of a long and tedious session of the medical council, evidently with the object of rushing it through without discussion—*vide* report B. D. A. Journal, June 15th, pages 439 and following—that it is fathered by the very men who, but a comparatively short time ago, did their utmost to *prevent* the formation of the Metropolitan Branch of the British Dental Association, and who, later on, at the annual meeting of the British Dental Association, moved, seconded and carried a resolution that the B. D. A. do not send delegates or be represented at the International Dental Congress to be held at Chicago next month, and later on, at meeting of the representative (?)

board, supplemented the foregoing by a duplicate action, on this showing—of which I have seen the records. See late numbers of the B. D. A. Journal.

These are hardly the men to be considered representative. There also being those upon the memorial upon whose initiative the metropolitan branch was formed, and who at the time heartily opposed the questionable tactics of those already referred to, in this connection, it is interesting to note this pooling of interests against the "blawsted foreigner, don't y' know," and witness this lying down together of the lion and the lamb, but we shall not have long to wait to see that when the lion gets up the lamb will be on the inside; or in other words, one party will find, to their discomfiture, having thus accepted the sop thus covertly thrown to them, have become the tools of those whose fair fighting qualities and wire-pulling capacity are in the inverse ratio. One very amusing aspect of the situation at present, and one that will bear a lot of careful explanation is, should *any* man from the United States wish to practice in Great Britain, no matter how many years he may have been in practice there, or whether he may be recognized as an international authority as a writer, teacher, or exponent in any way, of dentistry, as the law now stands he will have to pass his matriculation before he can indenture himself as a dental student, to possibly, one of these chemist—*cum*—dentists, who are quite eligible to sign the articles of apprenticeship, their names being on the dentists' register. And this is accepted by the medical council as evidence of a preliminary course to the hospital work required, notwithstanding the fact that the compelled-to-be pupil may have forgotten more than the registered ignoramus ever knew.

The comparative value of preliminary requirements in this connection, at least, is interesting if not instructive. After the pupil has probably wasted the foregoing time, he must still pass three years' *time*, irrespective of his ability to come up earlier for his examination, before he can receive his license (L. D. S.)—everything is licensed here, except the application of common sense, and that seems to be prohibited—the sale of methylated spirits, shoeblacks, horse slaughterers, doctors, 'bus drivers and dentists. So it is easily seen the dignified position occupied by the latter, who are bellowing at their custodians for recognition and preferment, where they might by a better display of tact, and a more honest demonstration of the possibilities of their calling, *command* the respect of the public, as do their confrères in the United States.

The social and professional position of American and English dentists can only be contrasted, and no one appreciates this fact more than do our British cousins, to whom I would suggest, legislation will never promote the change desired; it must come from your own individual selves, from within outward. You can then trust the public to properly appreciate your services, and place you upon the plane you are now clamoring to occupy.

One feature of the discussion that has impressed me, is the great play upon words as to the *preliminary* examinations, while in *no* instance has any specific charge of incompetency been forthcoming. A general charge has been made that insufficient *time* is devoted to the college courses in the United States. The best plan for these sticklers on the *time* basis, would be for them to go over while the colleges are in operation and stay long enough to thoroughly acquaint themselves with means and methods in vogue there. They could then form a logical and intelligent opinion upon a subject upon which at present they are sadly at sea. The *time* test, as worked there, is a bad one (although fully recognizing the necessity for a reasonable time standard). It is not infrequently grossly unjust to the good student, who thoroughly applies himself to his duties. One very potent factor in the rapid development of the American student as compared with his English cousin is, in the United States the majority of students are men who have had to work hard for the money to educate themselves, and who thereby appreciate the value of both time and money, and who determine to get the greatest value from their investment, whereas the English student is almost invariably the recipient of paternal bounty, and a man who has never earned a penny in his life, and is consequently in no hurry to end his student's days; and consequently does not apply himself as assiduously as he might, and undoubtedly would, had he previously experienced the trouble of accumulating the needful.

The politico-economical phase of the question has no little bearing upon this very important subject, and its comparative side might be studied to advantage by our English friends.

I notice that some remarks were made in the memorial as to the comparative merits of teachers and pupils engaged in our calling. As to where the advantage is, there can be no doubt. The words of Prof. Virchow, in his opening address at the international medical congress, at Berlin, when speaking of American medical students, must have burned into the souls of the European instructors present; what was true of medical students held equally good as regards dental students, and as they but reflect the capacity of their teachers, the result is but a foregone conclusion, which no amount of hyperbole or ungracious comment can dethrone. The public verdict is, as a rule, a just one, and one that no amount of legislation can set aside with impunity.

The lay mind, when appealed to, is resentful of this encroachment upon its rights, considering it, very naturally, as the imposing of a very high protective tariff against personal ability, and their right to secure the same if they are so disposed; and for a country that is nothing if not for free trade, to have an insurmountable barrier set up to prevent the exponents of a humanitarian specialty from broadening its capacity, is a high-handed proceeding that will be met with a justice that will be both swift and sure.

En Route.

REVIEWS AND ABSTRACTS.

Notes on Anæsthetics is a small English work by A. S. Underwood and C. C. Braine. This is the second edition, and is revised to date. The authors have evidently endeavored to place the subject in a practical and concise manner before the reader. Each agent is very fully described, as to the different ways and methods of operating. The chapters on nitrous oxide are well worth being studied. The little book is a *multum in parvo,* and will be found full of suggestions which will be of practical value to the physician ahd dentist, or anæsthetist.

The Rise, Fall and Revival of Dental Prosthesis. By B. J. Cigrand, B. S., D. D. S.

The second edition of this work is a very great improvement over the first edition both in the evidence of more care in compilation and the annotations throughout. Its typographical appearance is superior. The volume is enlarged from 100 to 300 pages. There has been added many new plates, among them a half-tone print of the first practitioner of dentistry in America and one of the Art Institute building, in which the sessions of the World's Columbian Dental Congress will be held. Altogether, it is a valuable book to be in every dentist's library, especially in those of the younger men.

The constant reader is perhaps familiar with the facts presented, and yet, with the copious notes, it is a good book of reference on the literature of the subject presented.

DENTAL LAW OF NEW SOUTH WALES.—A Bill to provide for the Registration of Dentists qualified to Practice, and for other purposes in connection with the Practice of Dentistry.

WHEREAS, it is expedient to make provision for the registration of dentists qualified to practice and for the purposes in connection with the Practice of Dentistry: Be it therefore enacted by the Queen's Most Excellent Majesty, by and with the advice and consent of the Legislative Council and Legislative Assembly of New South Wales in Parliament assembled, and by the authority of the same, as follows, that is to say:

1. This act may be cited as "*The Dentists' Act of 1893.*"

2. In the construction of this Act, unless the context otherwise indicates, the following terms shall have the respective meanings hereby assigned to them, that is to say:

"Minister."—The Minister for the time being charged with the administration of this Act.

"Medical Practitioner."—A legally qualified medical practitioner.

"Dental Board" or "Board."—The Dental Board appointed under the provisions of this Act.

"Dentist."—A person registered as a dentist under this Act.

"Dentistry."—The extracting and stopping of natural teeth, and the fitting and adjustment of artificial teeth.

"Register."—The Register of Dentists kept under this Act.

"Registrar."—The Registrar appointed under the provisions of this Act.

"Prescribed."—Prescribed by this Act of Regulations or by-laws made under this Act.

DENTAL BOARD AND OFFICERS.

3. There shall be a Board consisting of seven members, called the "Dental Board of New South Wales," which shall be

constituted as hereinafter provided, and shall have the powers and authorities hereinafter defined.

4. The first members of the Board, including the President, shall be appointed by the Governor in Council for a period of three years, "and shall consist of two Medical Practitioners, two of the general public and three Dentists, who appear to be eligible for registration as Dentists under this Act."

If any vacancy occurs in the office of member of the Board during the period for which the first members of the said Board are appointed, the Governor in Council may fill such vacancy by appointing without previous election any dentist, or medical practitioner, and the person so appointed shall hold office until the expiration of three years from the date of the appointment of the first members, and no longer.

5. In the case of future Boards the members shall be elected by the dentists, and the President shall be a member of the Board, and shall be chosen by the members thereof.

At least four members of the Board shall be dentists, and the remainder shall be medical practitioners. Elections of members of the Board shall be held in the prescribed manner.

6. No person shall be appointed or elected President or member of the Board for more than three years, but any person appointed or elected a member of the Board shall, upon the expiration of the term for which he was so appointed or elected, be eligible for re-appointment or re-election.

The Governor in Council may from time to time remove the President or any member of the Board whenever by continued absence from meetings or from any other prescribed cause such removal is deemed to be necessary.

7. The Board may from time to time appoint a Registrar and such other officers as it may think fit for the purposes of this Act.

REGISTER.

8. (1.) A Register shall be kept by the Registrar which shall contain in one alphabetical list, according to surnames, the names of all dentists who are registered under this Act, and shall state the full names and addresses of the registered persons, the description and date of the qualifications in respect of which they are registered, and shall contain such other particulars and be in such form as may from time to time be prescribed.

(2.) The Board shall, in the month of January in each year, cause a true copy of the Register to be sent to the Minister, which shall be published by the Board in the *Gazette* after the Minister's perusal. A copy of the *Gazette* purporting to contain a copy of such Register or any regulations made by the Board, shall be *prima facie* evidence in all courts of justice, and in all legal proceedings whatsoever, that the persons therein specified are registered according to the provisions of this Act, or that such regulations were duly made. And the absence of the name of any person from the latest of such printed copies for the time being shall be *prima facie* evidence until the contrary be made to appear that such person is not registered.

(3.) The Registrar shall, in the execution of his duty in relation to the Register, conform to the regulations of the Board, and to any special directions given by the Board.

(4.) The Board may, if it thinks fit, from time to time make orders for the registration in the Register, on payment of the prescribed fee, if any, and the insertion in the Register, of any additional diplomas, membership, degrees, licenses, or letters, held by any registered dentist, which appear to the Board to have been granted after examination by any medical or dental authority in Her Majesty's dominions or elsewhere, in respect to a higher degree of knowledge than is required to obtain a certificate of fitness under this Act.

9. The Registrar shall, from time to time, as occasion may require, make in the Register any necessary alterations in the name or address of any registered dentist, and shall remove the name of every deceased dentist, and in the execution of such duties the Registrar shall, subject to the regulations and the directions of the Board in any case, act on such evidence as in each case appears to him to be sufficient.

10. When a registered dentist has, either before or after the passing of this Act, and either before or after he is so registered, been convicted either in Her Majesty's dominions or elsewhere, of an offense which if committed in New South Wales would be a felony or misdemeanor, or has been guilty of any infamous or disgraceful conduct in his professional capacity, such person shall be liable to have his name removed from the Register.

The Board may cause inquiry to be made into the case of a person alleged to be liable to have his name removed under this section, and on proof of such conviction or of such infamous or disgraceful conduct, may direct the Registrar to remove the name of such person from the Register; provided that the name of a person shall not be removed under this section until he has been cited to appear, and has been heard in his defense.

11. Where the Board directs the removal from the Register of the name of any person, or of any other entry, the name of that person or that entry shall not be again entered on the Register, except by direction of the Board, or by order of the Supreme Court, but the Board may, if it thinks fit in any case, direct the Registrar to restore to the Register any name or entry removed therefrom without fee, or on payment of such fee, not exceeding the registration fee, as the Board may from time to time direct, and the Registrar shall restore the same accordingly.

12. From and after the first day of January, one thousand, eight hundred and ninety-three, no person other than a medical practitioner shall be entitled to take or use the name or title of "Dentist," or of "Dental Practitioner," or of "Dental Surgeon," or any name, initials, title, addition, or description implying that he is registered under this Act, or that he is a person qualified to practice dentistry (either alone or in combination with any other word or words), unless he is a registered dentist under this Act. And any person who, after the —— day of ——, one thousand, eight hundred an ninety ——, not being a medical practitioner or a dentist registered under this Act, takes or uses any such name, initials, title, addition or description, as aforesaid, shall be liable, on conviction, to a penalty not exceeding *twenty* pounds for every day during which he so represents himself.

13. Every person registered under this Act as a dentist, and every medical practitioner, shall be entitled to practice dental surgery or dentistry in any part of New South Wales, and to sue in any court of law to the extent of the jurisdiction of such court for the recovery of his fees or other remuneration of his professional services in dentistry, or in the performance of any dental operation, or for any dental attention or advice.

14. From and after the —— day of ——, one thousand, eight hundred and ninety ——, no person shall be entitled to recover any dental attendance or advice, or shall hold any appointment as a dentist or dental practitioner, or dental surgeon in any hospital, infirmary, dispensary, or lying-in hospital, or in any lunatic asylum,

gaol, penitentiary, or other public institution, unless he is registered as a dentist under this Act or is a medical practitioner.

15. Any person who

(*a*) Is registered in the United Kingdom in accordance with the laws for the time being in force therein as a dentist or medical practitioner; or

(*b*) Is entitled as hereinafter mentioned to be registered under this Act as a dentist; or

(*c*) Has for a period of six months before the passing of this Act been *bona fide* engaged in New South Wales in the practice of dentistry, either separately or in conjunction with the practice of medicine, surgery, or pharmacy; or

(*d* Has attained the age of twenty-one years, and has been engaged continuously during a period of not less than four years in the acquirement of professional knowledge in dentistry, and has passed an examination before the Board in the subjects prescribed by the regulations, and who proves the facts to the satisfaction of the Board, shall be entitled to be registered as a dentist under this Act.

16. Any person who has studied as a pupil with, or has been an apprentice of a dentist registered under this Act, and who commenced his professional education or apprenticeship at least six months before the passing of this Act, and who has been a pupil or apprentice for not less than three years, shall be entitled, on making a declaration in the form of the First Schedule of this Act, to be registered under this Act, as if he had been at the passing of this Act *bona fide* engaged in the practice of dentistry in New South Wales.

17. Any person who has practiced dentistry for not less than twelve months elsewhere than in New South Wales, and who holds some recognized certificate as hereinafter defined, and who proves to the satisfaction of the Board that he is of good character, shall be entitled, upon the payment of the prescribed registration fees and without examination, to be registered as a dentist under this Act.

The term "recognized certificate" means a certificate, diploma, membership, degree, license, letters, testimonial, or other title, status or document, granted by some university, college, or other public institution, in a British Possession or Foreign country, and which is recognized by the Board as entitling the holder thereof to practice dentistry in such possession or country and as furnishing sufficient guarantee of the possession of the requisite knowledge and skill for the efficient practice of dentistry.

18. When any person makes application to be registered in respect of any certificate, diploma, membership, degree, license, letters, testimonial, or other title, status or document not specified in the Regulations, the Board may entertain such application and deal with it specially, and may, if it thinks fit, give to such applicant a certificate of recognition setting forth that he is the holder of a recognized certificate, and the Registrar shall take such certificate of recognition as an authority to register such applicant.

19. A person shall not be registered under this Act by reason of his having been before the passing thereof engaged in the practice of dentistry in New South Wales, unless he makes application to the Registrar before the —— day of ———, one thousand eight hundred and ninety ——, accompanied by a declaration signed by him in the form set out in the second schedule to this Act.

EXAMINATION.

20. The Board shall from time to time hold examinations or the purpose of testing the fitness of persons to practice dentistry, and may grant certificates of such fitness to those persons who satisfy the said Board of their fitness on examination.

The Board shall admit to the examinations held by it under this section any person desirous of being examined who has attained the age of twenty-one years and has complied with the regulations (if any) as to the general knowledge possessed by such persons.

21. Such reasonable fees shall be paid for certificates to be granted under this Act by the Board, and for examination by the Board, as may be from time to time prescribed.

REGULATIONS.

22. The Board may, with the approval of the Governor in Council, make regulations prescribing the mode of election of members of the Board, regulating the proceedings of the Board, fixing quorums for meeting, providing for removal of members, neglecting their duties upon the Board, defining and ordaining the duties of its officers, prescribing what certificates, diplomas, memberships, degrees, licenses, letters, testimonials, or other titles, status, or documents will be recognized by the Board as qualifying

persons holding them or any of them to be registered under this Act as dentists, prescribing the degree of general and professional knowledge required from persons applying to be examined for registration as dentists, and otherwise for the purpose of carrying the provisions of this Act into execution.

MISCELLANEOUS.

23. Any Registrar or other person who willfully makes or causes to be made any false entry in, or falsification of, the register, and any person who willfully procures or attempts to procure himself or any other person to be registered under this by making or producing, or causing to be made or produced, any false or fraudulent representation or declaration either verbally or in writing, and any person aiding or assisting therein, shall be guilty of a misdemeanor, and shall on conviction be liable to be imprisoned, with or without hard labor, for any term not exceeding *twelve* months.

24. The Board may examine any person (and if deemed expedient) upon oath or take a solemn declaration from any person, and if any person willfully makes any false statement upon such examination or in such declaration, or utters or attempts to utter or put off as true before the Board, any false, forged, or counterfeit certificate, diploma, license, letter, testimonial, or other document or writing, he shall be guilty of a misdemeanor, and shall on conviction be liable to be imprisoned for any period not exceeding one year.

25. All informations for offenses against this Act shall be laid by the Registrar or some other person appointed by the Board for that purpose, and all penalties when recovered shall be paid to the Dental Board.

26. Any person registered under this Act who uses any letters, words or initials to mislead the public as to his true qualifications shall be liable to have his name removed from the Register of Dentists.

27. The fees mentioned in the third schedule to this Act shall be payable by persons applying to be registered, or obtaining certificates of registration under this Act, or inspecting the register respectively, to the Registrar, and shall be applied by the Board in defraying the expenses and carrying out the provisions of this Act.

AN ACT.

TO REGULATE THE PRACTICE OF DENTISTRY IN ARIZONA.

Be it enacted by the Legislative Assembly of the Territory of Arizona :

SECTION 1. That it shall be unlawful for any person, who is not at the time of the passage of this Act, engaged in the practice of dentistry in this Territory, to commence such practice unless such person shall have received a license from the Board of Examiners, as hereinafter provided for.

SEC. 2. The Governor of the Territory shall appoint, after the passage of this Act, five (5) skilled dentists of good repute, residing and doing business in the Territory, who shall constitute a Board of Registration in dentistry.

But no person shall be eligible to serve on said Board unless they have been regularly graduated from some reputable dental college, duly authorized to grant degrees in dentistry, or who shall have been actively engaged in the practice of dentistry for a period of ten (10) years previous to appointment.

SEC. 3. The length of term for which the members of said Board shall hold office shall be three (3) years, except that two of the members of the Board, first to be appointed under this Act, shall hold office for the term of one (1) year, two for the term of two (2) years, and one for the term of three (3) years respectively, and until their successors shall be duly appointed and qualified.

In case of a vacancy occurring in said Board, such vacancy shall be filled by the Governor in conformity with Section 2.

SEC. 4. Said Board shall choose one of its members President, and one Secretary and Treasurer, and it shall meet at least once a year, and oftener if it shall be deemed necessary.

Four of said Board shall constitute a quorum.

The proceedings of said Board shall at all reasonable times be open to public inspection.

SEC. 5. It shall be the duty of each person now engaged in the practice of dentistry in this Territory, within ninety (90) days after the passage of this Act, to send an affidavit to the Secretary of said Board, setting forth his or her name, place of business, postoffice address, the length of time they have been engaged in the practice of dentistry in this Territory ; if a graduate of a dental college, state the name of college, and shall pay to the Treasurer of said Board the sum of five dollars ($5) for which they shall receive from said Board a practitioner's certificate.

On failure to comply with the provisions of this section they shall be required to appear before the Board and be examined by said Board.

Sec. 6. It shall be the duty of all persons not holding diplomas, who wish to engage in the practice of dentistry in this Territory, after the passage of this Act, to appear before said Board at a regular meeting and pay into the Treasury of said Board the fee of twenty-five dollars ($25) not returnable, and stand an examination by said Board in operative and prosthetic dentistry, and all the branches taught in a reputable dental college, and if such applicants pass and examination satisfactory to said Board, said Board shall issue to said applicant a license which will entitle him or her to practice dentistry in this Territory.

Sec. 7. It shall be the duty of all persons holding diplomas, who wish to engage in the practice of dentistry, after the passage of this Act, to present or send to the Secretary at the regular meeting of said Board an affidavit and diploma with fee ($5) not returnable, and after said Board, being satisfied that said diploma belongs to said applicant and that it was issued in good faith by a reputable dental college, said Board shall issue to said applicant a certificate of registration for said diploma.

Sec. 8. All persons receiving a certificate to practice under this Act shall register his or her certificate with the County Recorder of the county in which he or she resides, and shall pay to the County Recorder for such registration the sum of two dollars ($2).

Any failure on the part of any person holding such certificate to comply with the first part or this section within thirty days (30) after receiving certificate, shall forfeit said certificate, and any certificate once forfeited shall not be returned by said Board until applicant shall have paid to said Board the fine of twenty-five dollars ($25).

It shall be the duty of each County Recorder, to forward to the Secretary of said Board the names of all persons having registered their certificates with them.

Sec. 9. It shall be the duty of said Board to cause to be kept a record of all its proceedings, and the names and addresses of all persons qualifying under this Act.

An annual report of the same shall be rendered to the Governor.

All moneys received by the Secretary under this Act, shall be used for the legitimate expenses of said Board, but in no case shall any money of the Territory be used for that purpose.

Sec. 10. Any person or persons violating any provisions of this Act, shall be deemed guilty of a misdemeanor, and upon conviction shall be fined not less than one hundred dollars ($100) nor more than two hundred dollars ($200) or confined six months in the county jail, or both, for each and every offense.

All fines recovered under this Act shall be paid into the common school fund of the county in which such conviction takes place.

Sec. 11. It shall be the duty or the Prosecuting Attorney of each County to prosecute such cases when brought to his knowledge.

Sec. 12. That nothing in this Act shall be construed so as to interfere with the rights and privileges of resident physicians and surgeons in the discharge of their professional duties.

Sec. 13. This Act shall take effect immediately after its passage.

Approved April 3, 1893.

PRACTICAL NOTES.

DENTAL NOMENCLATURE.

By Dr. Wm O. Kulp, Davenport, Ia.

The subject of Nomenclature in Dentistry, has been under special consideration to a greater or less degree by the profession, for more than a quarter of a century, but for some reasons (partially mysterious) there seems but little *real headway* made toward a perfect system in any branch.

Many of the terms then and now in use are—unfortunately—indefinite. It seems to me that all terms used, should be *self-explanatory* as far as possible; certainly not misleading. Take as an instance "the nerve of a tooth." I presume this was so called on account of the sensation experienced in touching the dentine (or the vascular mass within the tooth). The term, "dental pulp," seems a much more proper term, and should entirely supersede the term—nerve. Then, would follow appropriately, the use of the following terms (in describing the various conditions in which we find the pulp), viz :

"Inflammation of the pulp;" "Pulpitis;" "Pulp treatment;" "Pulp hypertrophy;" "Pulp atrophy;" "Pulp chamber;" "Pulp removal;" Pulp devitalization;" "Pulp canal," and "Pulp canal fillings;" "Pulp foramen" (for apical foramen); "Pulp exposure."

Thus, the whole line of allusions to the pulp would be in perfect harmony, and at the same time self-explanatory. Then I would suggest the term, "tooth" for crown, and "tooth extremity" for root. The use of enamel for the covering of the tooth is as good a term as we can use. Cementum and pericementum, I think, are more in harmony than "peridental membrane," for if we substitute pericementum for peridental membrane, we can use appropriately the terms : "Pericementitis," for inflammation of this membrane, and instead of the old term "alveolar abscess" (by which we intend to mean an abscess formed within this membrane) we can definitely locate this by using the term, "pericemental abscess." This seems to me to be a much better term for this *particularly located abscess.* For it is well known that we find alveolar abscesses often where this membrane is not involved. The crown, *or tooth,* should be the part from the margin of the alveolus to the occluding or grinding surface. And the extremity—that part enclosed in the alveolus and maxilla. The profession generally, are agreed to name the teeth from the median line, right and left in both upper and lower jaws.

1st. Central incisors.
2d. Lateral incisors.
3d. Cuspids.
4th. Bicuspids—first and second.
5th. Molars—first, second and third.

Anatomists have drawn an imaginary line longitudinally through the body, separating it into right and left; calling this line the median line, naming all surfaces exposed toward this line—mesial surfaces; and the surfaces to the opposite—distal surfaces. In reference to the teeth (except in the incisors) these surfaces are understood by anatomists and surgeons, to be what we call lingual and buccal surfaces. So also have they established a rule (nomenclature, if you please) to call all surfaces exposed toward the brain "superior marginal" surfaces; while those exposed toward the soles of the feet, the "inferior marginal" surfaces. With reference to teeth, the cutting edges and the grinding surfaces of the lower jaw would be understood to be the "superior marginal" surfaces, while the same surfaces in the upper jaw would be the "inferior marginal" surfaces.

The terms used in defining more minutely certain portions of the approximating surfaces of the teeth, such as Approximating Lingual Margin, Approximating Labial Margin, and the proximating surfaces themselves can be used in forming a nomenclature of the teeth for Operative Dentistry, in which the outlines of anatomists, as understood and established, need not be ignored, but taken as a basis upon which to build the structure. As our specialty is comparatively young, we must be permitted to coin new terms to suit our uses. The question then arises, shall these terms be based upon the Latin or Greek? Or shall they be wholly English? And why not? Is not America the nursery of dentistry, especially the operative and prothetic (dental art) branches? Then, why should we borrow our terms from dead or foreign languages? We may appropriately use words with Latin or Greek derivatives, for the English is largely composed of derivatives from other languages. But, to compel us to submit to Latin or Greek terms, in which to name the surfaces and operations upon the teeth, as well as to write our prescriptions in, seems absurd. We need no terms that are mysterious to the general public. The requirement of international terms cannot have much weight, as a greater proportion of our profession all over the world have learned and can understand English, than those who have learned and can understand Latin and Greek. Already we see English in the curriculum of all well-governed institutions of learning of all countries. Some of us will live to see the day when all men of business and education, as well as the great majority of the commoner people, will know English as well as any other language. Then, why should new specialties use "old timber" any more than is absolutely essential for the structure? The nomenclature of professions are the sign boards of its intelligence and training. Mysterious, high sounding-words and phrases have about had their day. The general public are becoming too intelligent to be courted into a reverence and awe of a profession by them.

The terms to be used in dentistry in the future, in my opinion, should be largely in the English language, and as far as possible, should be self-explanatory. Based upon the foundation of older specialties only as far as we come into contact with them. There should be a thorough weeding out of all the old, ambiguous and incongruous terms, and new ones substituted that are in thorough harmony with the position already indicated. It should cover the whole ground of

Dental anatomy,
Dental physiology,
Pathology,
Chemistry,
Operative dentistry (in all its branches),
Prothetic dentistry, and dental art in all its departments.

The attempt to base a system of nomenclature of the surfaces of the teeth upon the terms "mesial" and "distal" is not in anatomical harmony, therefore, a self-evident failure. The incisors are really the only teeth of all the set to which these terms would be applicable. For here we find the centro-proximal surfaces are exposed toward the mesial line, while the latero-proximal surfaces are farther from this line, therefore correct. The centro-proximal surfaces of lateral incisors are not always toward the mesial line. Neither are the cuspo-proximal surfaces the most distant from the line; therefore, cannot always be called the mesial and distal surfaces. The same is true with the cuspids; while in the bicuspids and molars, the mesial surface would be the lingual, and the distal, the buccal surface. *Not at all as intended* by the *framers* of this system. As they intend to convey to the student that by mesial surface of a bicuspid is meant the cuspo-proximal of a first bicuspid and bicuspo-proximal surfaces of a second bicuspid; and by the term distal is meant the bicuspo and molo-proximal surfaces of the same tooth, and so on with the molars, all misleading to students and anatomists. If you should refer to the mesial surface of a molar before anatomists, they would at once infer that you meant the surface toward the mesial line, which would be the lingual surface, while the distal surface would be understood to be the buccal. This line of argument is applicable to another system, but nearer correct; that of

ANTERIOR AND POSTERIOR SURFACES.

Anterior means toward the orifice (or opening) of the mouth, while posterior means that surface farthest from the opening (or orifice) then in the central incisor, the anterior surface would be the labial, while the posterior would be the lingual or palatine. This is true, also, with the lateral incisors, and partially true with the cuspid. While in the central the meaning is that anterior surface is the approximating surface, *i. e.*, centro-proximal. While the lateroproximal surfaces are meant to be the posterior.

When we get back to the bicuspids and molars, this system is nearer correct. But because of the inaccuracy of the system with the front teeth, it cannot be accepted as perfect or faultless. There is still a "looking for something better." We want a system of nomenclature, in which every term used will explain itself, so that as soon as we learn the names of the teeth, we can understand the term used in describing the surfaces of any tooth. When we have such a nomenclature, cavity notation will become an easy matter.

MEMORANDA.

Dr. Cadwallader, of Madrid, is in Chicago.

Dr. J. Y. Crawford, of Nashville, is in town.

Dr. Charles H. Osgood, of Boston, is deceased.

Dr. M. W. Foster, of Baltimore, is in Chicago.

Dr. Antonio Vergel de Dios, of Manilla, is in Chicago.

Dr. George Cunningham, of Cambridge, Eng., is in Chicago.

Dr. George W. McElhaney is stopping at the Hotel Imperial.

Dr. Erich Richter, of Berlin, is in attendance on the Congress.

Dr. Yngejionien Voltigrysgnomeng is stopping at the "Radcliff."

Dr. O. Zeigmondy, of Vienna, is attending the Dental Congress.

Dr. H. J. McKellops, of St. Louis, is stopping at the Hotel Savoy.

Dr. Wardlaw is Professor of Anatomy in the Atlanta Dental College.

Dr. J. P. Geran, of Brooklyn, is with friends on Seventy-second Place.

Dr. G. Carleton Brown, of New Jersey, is stopping at the Mecca Hotel.

Dr. R. H. Portuondo, of Madrid, is in Chicago, attending the Congress.

Dr. A. O. Rawls, of Kentucky, is visiting Chicago for the first time in fifteen years.

Dr. R. M. Streeter, of New York, a well-known and much respected dentist, is dead.

Dr. A. O. Hunt may be found at the Columbia Dental Club, 300 Michigan Avenue.

Drs. R. H. Kimball, Hong Kong, and J. Ward Hall, Shanghai, are attending the Congress.

Drs. W. W. Walker, A. L. Northrop and Frank Abbott are stopping at the Hotel Imperial.

Dr. Alfred Burne, of Sidney, New South Wales, is in Chicago, attending the Dental Congress.

There will be another dental college in Cincinnati this fall. Ohio now has six or seven colleges.

University of Michigan had fifty-three graduates this year, none of whom can practice in Great Britain.

Dr. A. P. Southwick, Secretary of the dental department of the University of Buffalo, was in Chicago recently.

The metropolitan city of Chicago appears to be filled with dentists from all over the country, and from foreign lands also.

There are twenty-five dental colleges in the National Association of Dental Faculties, according to the report just issued by Secretary Cravens.

Now is the time to look out for the dental fakirs who have some secret to sell, or some new process to impart for a money consideration. Beware of them.

A little powdered copper sulphate on a thin spatula, worked between the gum and the root of a tooth, will constringe the gum and lessen turgescence in a day or two.

Dr. George Cunningham, of Cambridge, England, Dr. W. Mitchell, of London, and Dr. Royce, of Tunbridge Wells, and Dr. L. C. Bryan, of Basle, Switzerland, are here.

The Dental College of the University of Minnesota hereafter will confer the D. M. D. degree. This degree is now d—m—d in England, as is well known—also the d. d. s.!

Dr. M. H. Fletcher, of Cincinnati, O., is the elected Chairman of the section on Oral and Dental Surgery of the American Medical Association. Next place of meeting, San Francisco, Cal., first Tuesday in May, 1894.

The Association of Faculties will take up the question of the English curriculum as compared with the recognized American preliminary, and issue an address to the civilized world on the best methods of dental education.

A daily edition of the DENTAL REVIEW will be issued during the meetings of the World's Columbian Dental Congress, for which no charge will be made. All regular subscribers not present in Chicago, by sending a postal to the publisher can get one free.

The American College of Dental Surgery has reorganized its faculty. Drs. J. W. Wassall, L. L: Davis, E. H. Angle, J. G. Reid, Louis Ottofy and W. E. Harper taking the places of Drs. Marshall, Ludwig, Ingersoll, Clifford and others. Dr. Ottofy is the dean.

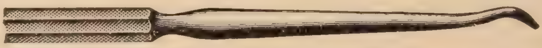
An editor complains that there are to be no papers on anæsthesia at the Dental Congress. Well, we have listened at times to papers that were not only soporific but really anæsthetic in their dullness, say like those in some journals that we forbear to mention.

Numerous requests have come to the management of the World's Columbian Dental Congress for a "corresponding membership." There are no memberships except active, participating memberships. No banquets sent out to foreigner or native. You must all come or be left out in the cold.

M. A. Preterre, D. D. S., the founder and editor of *L' Art Dentaire*, is deceased, at the ripe age of 72. M. Preterre was one of the first dentists in France to make use of nitrous oxide for the extraction of teeth. It is said he never had an accident in its administration during nearly forty years in its constant use.

With the beginning of the winter term the new building now in course of construction by the Chicago College of Dental Surgery will be ready for the reception of students. The structure is five stories high, and has a ground area of 87x70 feet. There is also a high basement for lockers, engine room, closets, laboratory, etc.

Dr. Norman W. Kingsley, who is now in Europe, contradicts by authority the rumor, recently published in some of the journals, that the International Medical Congress of 1893 at Rome had been postponed. It will certainly begin on the 24th of September and the Odontological Section promises to be of more interest han that of any preceding congress.



The cut of the plugger herewith illustrated will show its uses on a first inspection. It does not tear the gold, and being serrated on all sides it can be used with a backward, forward or downward motion. If there were several sizes nearly every cavity in the human tooth might be filled with gold or tin. Dr. A. C. Hewitt loaned us the plugger from which the cut is made.

The next regular meeting of the Board of Dental Examiners, of Arizona, for the examination of applicants for practitioner's certificates, will be held in this city, commencing Monday, Sept. 11.

Examinations will be both written and clinical, and not less than seventy-five per cent will be required on both examinations.

Respectfully Yours,
F. A. ODERMATT, Sec'y.

CURE OF HYDROPHOBIA.

Tizzoni and Cantanni have published (*Deutsch. Med. Zeit.*) reports of experiments on the cure of hydrophobia after actual outbreak, They found that an alcoholic precipitate from the serum of highly immunized animals not only caused protection of the organism against rabies, but possessed this action in such a high degree that it also cured rabies, even after the first symptoms of the disease had made their appearance. It has also been announced in the *Riforma Medica* that in the Pasteur Institute of Bologna the first cure of hydrophobia in an already advanced stage was effected by a special mode of the Pasteur treatment. A man bitten by a rabid dog, who had subjected himself to Pasteur's preventive treatment, was seized with the phenomena of paralytic rabies. Paralysis having progressed from the lumbar region over the whole organism, bladder and rectum included, intravenous injections of the fixed virus were administered, whereupon the painful symptoms gradually diminished, and finally perfect cure was accomplished.

DR. A. W. HARLAN:

Dear Doctor.—The editorial in the July number of the DENTAL REVIEW under the heading of "Recognition Withdrawn," coupled with a circumstance which took place in my office this day, prompts me to relate the circumstance briefly.

A young lady from England, stopping in Chicago for a time, attending the World's Fair, met her first appointment with me to-day, when I filled a tooth for her, and of course used a rubber dam, to which she seemed opposed, saying that she had teeth filled in London, England, by a man who was considered a good dentist, "and he did not use the rubber," she said. I inquired if she had ever seen it used before. She replied that she had not. She has but one filling remaining in the mouth aside from those which I put in to-day, and that one is an amalgam filling in a very bad condition. The same London dentist made two clasp plates for her, for which he charged $60.00, which lasted less than three months, and yet that man is allowed to practice dentistry in a country which refuses to recognize the diplomas from colleges in this country.

I am one of the class of graduates from the Chicago College of Dental Surgery in 1892.

Very truly yours,

H. A. CROSS.

DANGEROUS DIFFERENCE BETNEEN AMORPHOUS AND CRYSTALLINE DIGITALINE AND ACONITINE.

The *Journal de Pharmacie von Elsass Lothringen*, points out a serious danger in prescribing digitaline and aconitine. In 1866 the only specimens of these alkaloids were the amorphous forms. Professor Dunstan, together with his pupils, have succeeded in emphatically showing the difference in toxic properties between crystallized (true) aconitine, and the ordinary amorphous alkaloid, and urge the necessity of a recognition of this in the British Pharmacopœia. But whereas only the impure amorphous forms were known in 1866, the compilers of the Codex were safe in fixing the dose, generally administered in granules, at 1 milligram. But the Codex of 1884 mentions amorphous digitaline, crystalline digitaline, and only crystalline aconitine; and yet the dose remains at 1 milligram for the official granule. And in cases where the dose of a granule is not indicated by the prescriber, it is natural to expect that the official dose would be dispensed. If the therapeutic activity of the amorphous digitaline of the 1866 Codex be compared with that of 1884, it will be found that the latter, which is entirely soluble in chloroform, is nearly four times as strong as the former, and consists of 90 per cent of true crystalline digitaline. In the case of aconitine, it is absolutely dangerous to use it in doses of 1 milligram, if the crystalline alkaloid be employed. In fact, fatal cases have been known when this quantity has been administered. The importance of attention to these points cannot be overestimated.

BACTERIA AND CALCULI.

The *British Medical Journal* reports that in a paper presented to the Paris Academy of Sciences, Dr. Galippe discusses the relation of microbes to calculous deposits and concretions within the body. As the result of eight years' work on the subject, he found all varieties of stones and concretions to contain microbes of a peculiar kind. These he regarded as the causes of the chemical decompositions which led to the formation of the deposits. Healthy organs frequently contain the micro-organisms in large numbers, but they produce no harmful effect so long as the body fluids are in a normal state. When the fluids become morbid, however, the microbes "set to work to produce the deposits which develop into gravel and stone," By cultivating the bacteria in a solution containing human saliva for several years, he obtained from it hundreds of little stony concretions which were identical in character with ordinary salivary concretions. Dr. Galippe suggests that his microbe, which can be isolated and artificially cultivated, might be employed for a therapeutic purpose, namely to induce calcareous changes in tuberculous faci, and thereby to arrest the progress of tuberculous disease. The *Journal* adds that these results have in a measure been anticipated by H. Robinson, of Cambridge, England, who described how, by cultivation of certain specific bacteria, among them the bacterium putridum fluorescens, obtained from well water, he had been able to produce crops of crystalline concretions of triple phosphate. He suggests that the formation of calculi in the body may be due to the production in it of ammonia by microörganisms, and he finds that certain of the microbes found in the human mouth produce triple phosphate crystals with great facility. This fact has led him to suppose they may be the cause of the deposition of tartar on the teeth, and he has shown that certain microörganisms commonly found in the mouth do produce that substance in the test tube.

OBITUARY.

Whereas: In the sudden death of Dr. Henry Fisher the St. Louis Dental Society has lost one of its oldest and best members, a faithful and trustworthy officer for many years, and one who had the highest interest of the society and profession at heart; be it

Resolved: That our heartfelt sympathy be tendered to the bereaved family and

Resolved: That a copy of this preamble and resolutions be sent to the family of the diseased, and also to the daily press and leading dental journals for publication.

W. H. Eames,
W. N. Morrison,
J. B. Newby.

St. Louis, August, 1893.

THE

DENTAL REVIEW.

VOL. VII. CHICAGO, SEPTEMBER 15, 1893. No. 9

WORLD'S COLUMBIAN DENTAL CONGRESS.

PRESIDENT'S ADDRESS.

BY L. D. SHEPARD, A. M., D. D. S., D. M. D., BOSTON, MASS.

It is becoming that the gathering of the nations in this wonderfully energetic metropolis, in this memorable year for America, should be taken advantage of for the holding of an Exposition of Dentistry, of all countries, in all branches, scientific and practical, as it exists to-day.

The origin of the Congress dates from action taken three years ago by the two governing dental societies of the country—action which anticipated, I believe, the organization of the World's Congress Auxiliary with its high aims and broad plans. We were happy to ally ourselves with the Auxiliary, and so participate in the successful administration of its high educational result. While our autonomy has been preserved, we are proud to be one of the many Congresses held under its auspices for the good of society.

The two societies jointly created a trust, by the appointment of a General Executive Committee, and agreed "that any action that this committee may take shall be final and binding."

The only instruction to the committee in what might be called its charter was "to take such action as in its judgment it may deem best for creating an organization for the purpose of holding a dental meeting in Chicago in 1893, which the reputable dentists throughout the world shall be invited to attend."

It was understood that this organization should be *sui generis*, complete in itself without continued corporate existence. The committee accepted the trust as a great and responsible one, and has worked assiduously to justify the confidence reposed in it. It has ever endeavored to do the best thing and to be just to all.

The committee understood that the primal and fundamental object was to hold a dental meeting so broad and catholic in spirit and policy that it should be essentially inclusive of everything good and exclusive of none, to the end that all creeds may be heard and the truth through a multitude of counsel be evolved.

In accordance with this conception the invitation to membership was so broad as to include every dentist in the world who was considered respectable and honorable. The only conditions were that he be a legal practitioner in his country and carry on his practice in accordance with recognized ethical principles. The dentist of affluence whose clientele is most aristocratic has no more right here than the humblest of those who honor our vocation by good work in the remotest country village.

Perhaps of no other profession of equal altitude and amplitude can it be said, as of dentistry, that its evolution is embraced within the span of one human life.

There are men living to-day, still active and officers of this Congress, who were in practice in the day of small things of our profession. They are with us, witnesses of the marvelous march of progress; veteran survivors of the noble army of investigators, inventors, authors, teachers, and honorable workers who, in various spheres, with diversified talents, with patient toil, with fidelity to present duties, and with hope and faith were achieving the victory which we celebrate to-day.

Other professions and other branches of the great healing art have made great strides in the same space of time, but of no other vocation or profession devoted to human happiness and amelioration, except perhaps photography and applied electricity, can it be said with equal truth, that for system and well-rounded development such a contrast can be shown between the humble acquirements and achievements of the youth of the men referred to and the ripened conditions existing to-day. Medicine, unlike mathematics, is not an exact science, but of all branches of surgery there is probably none in which the realization of the ideal is so nearly secured as in dentistry.

All vocations are entitled to honor where the work is honest and the ends sought for are commendable, but especial honor has ever been rendered to those vocations which deal with human ailments and sufferings, whether mental or physical, and to such vocations from antiquity the differential honor of the name profession, formerly more narrowly used than at present, has been given. The relative rank among professions is not unimportant, but can we not claim with proper modesty and truthfulness that for the prevention and amelioration of human suffering, and for the peace, health, and prolongation of human existence, dentistry is to-day without a peer among them all?

It has been allotted to others to present to you the latest phases of every department of professional study, scientific, practical and humanitarian, and to demonstrate the knowledge and skill in theory and practice. The ablest men in dentistry in the world will bring the products of their brains and hands before you. The week will be full to overflowing with interesting and valuable papers and discussions, with brilliant lantern illustrations of the patient and self-sacrificing investigations of men truly scientific, who have delved into the mysteries of cell-life, and will bring before our eyes the great unseen, wherein lies the foundation of all etiology and scientific knowledge and progress. Others with skillful hands working in harmony with active brains will demonstrate the manifold practical applications of theory and experience for our better equipment for the daily duties of the office.

In presenting to you this inaugural address, my duty it seems to me should be, not to anticipate or encroach upon the work of these others, but to attempt to give a brief outline of the evolution of the profession, with the salient points which mark its progress.

That dentistry to some extent is an ancient art cannot be questioned, but so meager are the references to it, in what remains that is authentic, that we may dismiss it from consideration at this time with the remark that nothing of value has come down to us from antiquity. The same is true of all the past up to the century preceding this. In fact, even as an art we may consider dentistry as modern, while as a science it is altogether modern.

Time will not permit me to review at length what is known of its condition in the last century, nor shall I refer but briefly to the conditions in the early part of the present century. The very valuable report which will be made by the Committee on History with so many colaborers will, I have no doubt, give us a very full history, for the first time, of early dentistry in this country. This congress would be well worth its cost if no other result should come of it but this.

There are no sharp lines of demarcation in evolutionary processes, and in their review we find the changes to be so gradual and long-continued that it is difficult to fix upon a time which is so distinctively marked as to be called a natal day. We have been accustomed to date the birth of a man from his advent upon the visible stage, and yet that day witnesses but a change of environment, and, as a large proportion of humanity believe, the birth of the soul dating months before. So dentistry had its embryonal stage; its inception is shadowed by the mists of antiquity. Through ages it slowly gained, and we cannot describe its progress. During the last century and in the early part of this century there were signs of life and movement, the quickening had taken place, the world was expectant, and the joyful consummation, by the birth of a new profession, freighted with beneficence to suffering humanity, occurred in 1839, in the city of Baltimore, by the organization of the first dental college in the world. As a scientific profession that is its natal day. There had been life before, as in the case of the man, but the environment had so changed that now there was a new air to breathe, new sources of nutrition, the barrier of the previous restricted environment was removed, and there was free chance for growth to the stature of the full typal ideal.

Let us not forget to hold in the highest honor the devoted men who assisted at this birth. They are not the fathers of scientific dentistry—the primal causes date farther back—but their care, their oversight and efficient ministrations, in guiding and assisting in the culmination of evolutionary changes at its critical period, were most creditable. Like the Great Physician, they thought less of self than of humanity. They brought into the world the good "Evangel" of dentistry, for previous to that time knowledge and skill were guarded and sold as private property, while that day heralds the advent of "good tidings" to every man in search of knowledge for the good of men. The dental aspirant before that time found every avenue to knowledge carefully defended. Knowledge could only be obtained in the private office of a dentist, and the ambitious student was obliged to buy it, frequently at fabulous prices prohibitive to the majority. The dentist who had obtained reputation thus received considerable revenue from such seekers—

and in time exacted a promise of the student to likewise guard the information imparted.

The Baltimore College of Dental Surgery was the first Thesaurus of dentistry. Here were first deposited the stores of knowledge which before were in individual keeping. Here, too, also for the first time in dentistry, for a stated moderate price, the student could draw from this treasure-house all the accumulated knowledge it possessed.

Let us bear in mind that the prominence given to the establishment of this first professional school, as marking a natal period, is not primarily because it was the first professional school; that is of course noteworthy, so is the establishment of a new manufacturing business in a community, for it may be followed by other enterprises, and so the place becomes prosperous—but the point should be emphasized, and it is the great point, that here was the beginning of a change of *spirit* as well as of method. Before this it was a trade, ever mindful of self, accumulative, afraid of competition, exclusive, faithful to the immediate patient and auxious to do him good but regardless of the rest of the world, dominated by selfish interests, carefully hoarding knowledge, with no broad professional spirit—no brotherhood feeling.

It is hard to realize at this day when there is such freedom, such fraternal feeling, and actual competition to impart knowledge, that such a contrast in professional spirit could have existed six decades ago. It is a fact, however, and there are members of this congress who commenced their study of dentistry in the old way. In my opinion this change of spirit is at the foundation of the new era, and all progress since then may be said to rest upon it.

With similar prophetic vision and patriotic motives in this same epochal year, the great hand-maid and colaborer of the college was established by the publication of the first dental periodical in the world, the *American Journal of Dental Science*. The same spirit, the same ambition for the profession and the same regard for humanity, actuated the generous and enthusiastic founders of journalism as of the college.

As human nature is constituted, the college and the magazine are not enough to redeem and to enlighten. A few are reached by these agencies, but to stir the great mass, such is the inertia of ignorance and routine, the magnetism of personal intercourse is needed. That the succeeding year, 1840, should witness the supplying of this requisite, is another proof of the vivifying forces operating at this period.

The same few pioneers of progress who started the college and magazine in 1839, in association with others of like spirit and motive on August 18th, 1840, met in New York and organized the American Society of Dental Surgeons.

No authentic records of any previous dental society exist. So this society may be respected as the prototype of the multitude of societies which, since then, can justly claim so great a share in the growth in which we rejoice to-day.

In the organization of this society, the resolution offered by Professor Chapin A. Harris, for the appointment of a committee to draft a constitution and by laws, commenced with these words, which have proved prophetic :

> "*Resolved*, That it is the opinion of this convention that the science of dental surgery would be advanced and the interests of all well-informed practitioners and the community at large be promoted by the formation of a National Society of Dentists."

And in the constitution which was adopted, the first article struck the keynote for all time in these words: "The objects of this society are to promote union and harmony among all respectable and well-informed dental surgeons; to advance the science by free communication and interchange of sentiments, either written or verbal, between members of the society, both in this and other countries; in fine, to give character and respectability to the profession," etc.

We thus see, within a few months, the erection of the great tripod upon which all professional advancement must rest, the college, the journal, and the association.

The first aimed to thoroughly prepare the novitiate for the highest usefulness, while the broad field of the others was the great mass of practitioners of varied proficiency.

Dr. C. W. Ballard, of New York, in an essay describing the profession at this period, says it might be divided into three classes :

The first class, embracing about one-half of all in practice, "consisted of those whose ignorance was their only excuse for the injuries they inflicted upon their patients, and ultimately their profession, as also of those who, having purchased or traded for a secret or two, depended upon bold-faced and unblushing impudence for their success. * * * Such men could only stand high in their own estimation, by dragging the profession down to their level. * * * Dentists, to this day, suffer to some extent from the odium brought upon their calling by the acts of these men. Dentists of this class knew little, and cared less, about the duties devolving upon them, and yet they were always ready to receive pupils and instruct them in the secrets and mysteries of dental science, provided they were well paid for it. The fees exacted in these cases varied from five dollars to one thousand. * * * The length of time occupied by these initiatory proceedings depended very much upon the ability of the student and the ignorance of the teacher. It was generally conceded by these dentists, that the shorter the time wasted in this manner the better for all parties."

The second class, embracing about three-eighths of the whole number, "may be considered as consisting of those dentists who, having obtained as great a knowledge of the principles and practice of dental surgery as their time, means, or opportunities would allow, came at once to the conclusion that so long as they did the best they knew how for their patients, and comported themselves in other respects as became good citizens, they had done their whole duty. * * * With these may be included those who commenced practice with little or no education, and were compelled in order to compete with those around them, to add, by every means in their power, to the knowledge and experience that their practice was daily giving them. Many of these men eventually became, to a certain extent, good practitioners ; but of the best of them it would be difficult to say whether the good or the evil which they had done in their day preponderated. Dentists of the second class were much better acquainted with their professional duties than those first described, and very many of them excelled in that branch of the practice known as mechanical dentistry ; and, in justice to them, it must be borne in mind, that, at the time of which we are writing, mechanical dentistry was considered, by a majority of the profession, to be by far the most important part of dental practice."

Those of the third class, about one-eighth of all, a good proportion of whom were medically educated, "had, as a result of their course of practice and deportment generally, acquired far more reputation and influence. . . . These few men seemed, from the outset, to have been impressed with the belief that the resources of the science were by no means developed—that dental surgery held a position far beneath that to which it was entitled . . . and that, as all these evils could and should be remedied, it was their duty to devote a portion of their time and energies to the work.

It will be found that this latter class, numerically so small, was the leaven which was to redeem the whole mass. The same law held here, as in material things, that the quality of the leaven was more important than the quantity.

In the year 1841 was enacted the first State law in regard to dentistry. It is probably also the first law in any country. I have not included legislation as among the important and fundamental causes of dental progress, for the reason that the Alabama law stood alone among the States in this country for over twenty-five years, the next law to be passed being that of New York in 1868. The English law was enacted in 1878, and in other countries about that date or later. While an indirect and inevitable result of dental laws has been to help the colleges by making an education a prerequisite to legal admission to practice, and hence to elevate the standards of the profession, there could be no justification for such prohibitive or restrictive enactments except as a safeguard to public health under the general police powers which in modern times have become so broadly applied and universally supported by the judiciary.

The struggle to secure these laws has been long and hard. Many efforts have proved repeatedly unsuccessful, but opposition has been overcome until at the present date nearly every State and country has such laws, identical in object and essential features, and varying only in what might be called minor details. There are few now who doubt their justice and usefulness.

In securing their enactment the profession has generally taken a leading part, and it can be truthfully claimed that the motive has not been selfish but philanthropic.

The next event in dental history was so brilliant as to be worthy of being called the most notable and beneficent discovery of the century or of all centuries—anæsthesia. What discovery or invention is comparable to this, by which "the knife of the surgeon is steeped in the waters of forgetfulness and the deepest furrow in the knotted brow of agony is forever smoothed away,'' to quote the poetic words of the venerable, but still useful author of the term anæsthesia, Oliver Wendell Holmes? While there has been an ether controversy, there cannot be an anæsthesia controversy. The ether controversy was waged with great earnestness and bitterness, but with the lapse of time and the removal of those directly interested, the credit is now generally given to the late Dr. Morton, a dentist of Boston. He it was who took his life in his hands, and, with sublime courage or audacity, put in jeopardy human life to solve the problem of anæsthesia with ether. He traveled in darkness an unknown road; he succeeded, and demonstrated to a skeptical world anæsthesia by etherization. The Massachusetts General Hospital justly and elegantly expressed the sentiments of mankind in its inscription upon the present given him in the words: "He has become poor in a cause which has made the world his debtor."

Without detracting from the great honor due to Dr. Morton, greater honor is due to another dentist. For it is true, and is now being admitted, that Dr. Morton has traveled in another path, though further than had been traveled two years before to his own knowledge, by the true and original discoverer of anæsthesia, from whom he derived his incentive, the late able, but less persevering and obstacle overcoming dentist of Hartford, Dr. Horace Wells.

If we grant that the whole includes all parts, though one part may be so brilliant as to overshadow the rest; if we grant that an inventor of something entirely new is entitled to credit superior to him who invents an improvement or modification, even though the latter may be better; if we grant that the discoverer of a great truth or principle in natnre is greater than the one who, following in the same lines, by using other agents or methods more fully or successfully demonstrates the truth or principle—we must admit that the greater honor is due to Dr. Wells—provided it is true, that in 1844, two years previous to Dr. Morton's discovery, Dr. Wells did intelligently and publicly, with full appreciation of the phenomena, perform painless operations in dentistry and surgery by the administration of nitrous oxid gas, given for that specific purpose. I think that history bearing this out is too explicit, too minute, and too reliable to render this statement debatable. Let us inquire what are the admitted facts. It is accepted to every one as proven.

1st. That Mr. G. Q. Colton did give an entertainment in Hartford, 1844, by the exhibition of laughing gas, for amusement.

2d. That Dr. Horace Wells was present in the audience.

3d. That Mr. Samuel A. Cooley, in his antics while under the influence of gas, injured his leg quite severely.

4th. That, on his recovery from the effects of the gas, Mr Cooley was surprised at the injury, and said he had felt no pain.

5th. That Dr. Wells concluded from this that the gas would be useful in extracting teeth, and so expressed himself.

6th. That Dr. Wells did put his inference to proof by an actual experiment upon himself—Mr. Colton giving the gas and Dr. J. M. Riggs extracting a tooth.

7th. That his object, stated beforehand, was to ascertain by trial whether such exhibition of the gas would render tooth-extraction painless.

8th. That Dr. Wells did state at once that the operation was painless.

9th. That Dr. Wells did many times give the gas for painless operations in Hartford, both in dentistry and surgery.

10th. That Dr. Wells had such faith in his discovery that he came to Boston in the winter of 1844-45, and was introduced to the hospital surgeons by his former pupil, Dr. Morton, and did administer the gas at the Massachusetts General Hospital, for an operation, with the express prestated purpose of demonstrating that operations could be painlessly performed.

11th. That the exibition at the hospital was only a partial success.

12th. That the students derided him, and that he went home to Hartford disappointed and disheartened.

13th. That Dr. Morton had knowledge of some of these facts—anterior to 1846.

14th. That the use of the gas as an anesthetic was discontinued in Hartford and elsewhere after Dr. Wells death, and the successful demonstration of the efficacy of ether for the same purpose.

15th. That in 1862 the use of the gas for anæsthetic purposes was resumed, and that it has since been proven throughout the whole world to be a safe and reliable agent for that purpose by many millions of exhibitions.

The discovery of the efficacy of chloroform in 1847, and its rapid spread over Europe to the almost total exclusion of ether, gave such fame to its discoverer, Dr. Simpson, afterwards Sir James Y. Simpson, that for many years in Europe he was generally reputed to be the discoverer of anesthesia.

These two anæsthetic agents had the field almost exclusively for about fifteen years until the revival of nitrous oxid in 1862, so that most naturally the agent used and the resulting anæsthesia became synonymous terms in the general understanding. It is not strange that the neglected and forgotten nitrous oxid during this long period should have had as companion in its oblivion the name and fame of Horace Wells. But its revival in 1862, and its general and successful adoption throughout the world demonstrates that it is second to no other agent, and proves that its short use, before ether eclipsed it, was due to fortuitous circumstances in no way detracting from the merit rightfully belonging to the diffident, sensitive, generous and noble man, who so soon after, disappointed and with unsettled intellect, met his tragic death, but whose memory is still green in the field of his labors and in the hearts of his fellow-citizens.

With commendable regard for truth and history, his city and state have testified to his worth and achievement by erecting his statue in enduring bronze.

A very beautiful monument, commonly designated as the Ether Monument, was erected in the Public Garden, Boston, in 1867, by the munificence of a private citizen. The inscriptions read:

"In gratitude
For the relief
Of human suffering
By the inhaling of Ether
A citizen of Boston
Has erected this monument,
A. D. 1867."

"To commemorate
The discovery
That the inhaling of Ether
Causes insensibility to pain
First proved to the world
at the
Mass. General Hospital
in Boston
October, A. D. 1846.

At the time of the erection of this memorial, many of those active in the first exhibition of ether were still living and were friends of the donor. It is presumable that great care was exercised to make the inscriptions impregnable to criticism. Two things should be especially noted—the absence of any name and the restriction of credit to ether alone.

However we may view the question as to the right of first place of honor for Wells or Morton, we can congratulate the profession that both were dentists, and that this greatest boon of the ages came from our ranks. So great an authority as Lecky says in his "History of European Morals," "It is probable that the American inventor of the first anæsthetic has done more for the real happines of mankind than all the philosophers from Socrates to Mill."

While in the following decade, 1850 to 1860, colleges, magazines, and associations multiplied and jointly contributed to bring the profession more and more in touch with progressive thoughts and truths, the most distinctive discovery of the decade and most momentous in its influences was that property of gold, which, previously considered detrimental, was now to be welcomed as its most valuable characteristic—cohesion. The introduction of crystal gold and the discovery of the cohesiveness of freshly annealed foil laid the foundation for the new era in operative dentistry. Let us never forget that while others claimed the latter discovery and doubtless had known of it and availed themselves of it for some time, Dr. Robert Arthur lost no time in freely sharing his discovery, as soon as made, with the whole profession. He thus achieved a distinction of which others have never been able to deprive him.

The descriptions and illustrations of operations with crystal gold in the essay of that venerable and respected Nestor still with us, Dr. W. H. Dwinelle, published in 1855, might still answer for an essay of to-day. Here was the renaissance of operative dentistry. Here was the dawn of the new era of restoration; the parting line between antique mutilation and disfiguration and the subsequent devotion to beauty and typal form. It was the first great advance in practice. It was but natural that it should soon be supplemented by improved instruments, the mallet, the rubber dam and the engine. How great a revolution has resulted from these instruments and appliances none can fully realize, except those of us who have been long enough in practice to remember the struggles necessary in the old era. However radical or conservative are the views we hold to-day, there can be no question of the tremendous shaking up of the profession in its thoughts and practice which resulted from these innovations.

While most of the appliances just mentioned came in during the decade 1860 to 1870, they do not constitute, it seems to me, the distinctive advance of that decade. There has been a disease of the mouth, which up to this time had been either unrecognized or regarded universally as incurable. It had from a remote period been described in the books as scurvy of the gums, or some such term, and had been treated only by washes or medication. It was considered inevitable and irremediable that sound teeth should be lost, self-extracted. A prophet arose who taught that such deplorable conditions were always preventable if taken in time, and frequently remediable by surgical treatment when the disease had made quite extensive inroads. He was received as prophets usually are, except by a few who early became his disciples. He was not a profound physiologist or pathologist, and did not present a theory or description which met the approval of experts; but he had lived many years, was a man of observation and reflection, and while not scholastic or correct on every point, his observations had been clear and his deductions in the main correct, so that the treatment which he was the first to bring out and demonstrate is even at this day, after so many of our best pathologists have devoted much time to the study of the disease, accepted as the foundation of all treatment.

The men who knew him, saw him operate, were taught by him, and were successful in following his methods, were wont to call the disease after his name. This was not correct, we know, for he originated only a treatment and did not describe a disease; but the fact remains, and there are enough living to testify to it, that as a result of his life and efforts, of the seed which he planted, a dire disease has been robbed of its terrors, the profession has been stimulated throughout the world to study its etiology and progress, and the premature loss of teeth from this disease is no longer considered providential or respectable.

When operative dentistry has continued to ride constantly upon a flood-tide of progress and improvement, prosthetic dentistry has had its ebbs and floods. Sixty years ago the great mass of the profession were unskilled as operators, but fairly skilled as plate workers. They could not save teeth, but they could replace their loss. In plate work the culmination of prosthetic skill and artistic production came with the invention and perfection of porcelain or continuous gum. After the introduction of vulcanite, the general disuse of metals made laboratory skill of little value, and hence it was neglected or ignored in the preparatory training of the student. The manufacturers supplied a great variety of instruments, so that the forging, shaping and tempering of instruments became almost a lost art. The ease and facility of working of vulcanite not only called for little ingenuity and skill, but so obliterated the distinctions that the novice, after a few weeks of instruction and practice could compete with the most experienced, and this important and most beneficial branch became the refuge and ally of incompetence and quackery. The evils resulting from the wholesale extraction of good teeth were most deplorable and cannot be estimated.

There has been grave doubt whether vulcanite in dentistry has been a blessing or a curse to the world. A superficial observer might contend that when organs so important to health were lost, it was a blessing that substitutes could be within the reach of all but those in abject poverty. But we know to what a shameful extent the harpies in our number, by appeals to cowardice and cupidity, despoiled the mouths of the confiding public of millions upon millions of strong and healthful teeth to make place for their bungling, disfiguring, and filthy substitutes. It did seem for a time that the whole profession would be engulfed in a sea of obloquy. But the reaction happily came, the tide turned, and we can congratulate ourselves and the world that the danger is fast disappearing.

The increase in the number and the constant elevation of the standards of the colleges year by year, raised the ratio of the educated; the periodical literature was more generally taken and read; societies multiplied and did most valiant missionary work; Codes of Ethics were adopted and enforced; laws were passed for the protection of society, which, while licensing all in practice to continue practicing, irrespective of their knowledge or skill, raised a barrier against the admission to practice of the ignorant and incompetent. From all of these and other causes the tone of the profession was gradually raised, and juster and broader views of what was right and best for the patient became more and more prevalent.

But the cause more important than any or perhaps all of the foregoing for the increase of laboratory skill and the retention of teeth and roots is to be found in the invention of the modern artificial crown and its corollary, the bridge.

This is the distinctive improvement of the past twenty years. Within that period more than one hundred different crowns and bridges have been invented and published.

The result has been two-fold. It has made laboratory skill of more importance and value to the dentist than ever before, and it has arrested the great "slaughter of the innocents," by making the retention of the roots of teeth in the mouth, obligatory.

At various periods the separation of the two branches of practice has been urged by prominent men of each branch, but by these inventions the two branches have been bound together in bonds which seem indissoluble.

The chief drawback to perfection in the past has been the inability of our art, however skillful, to permanently save some teeth. The inherent defects of structure or of surroundings made the best operations but temporary, and these teeth had ultimately to be lost and substitutes applied. Now, after all the worst has happened, the root is still of inestimable value for crowning. This invention seems to place a climax upon our art.

In recent years there has been an increasing interest in the deeper causes of physiological function and of pathological departure from normality. Histological investigations have been pursued with great enthusiasm and thoroughness, and the advances in other departments of microscopic research are largely due to methods which were first devised and employed in the study of dental tissues by ingenious dental microscopists. These fields of research are inviting to the student, but demand great courage and self-denial when cultivated by those whose labors are severe and fatiguing in the daily routine of the office. We rejoice that there are so many dentists throughout the world who are devoting their energies, after the day's work is done, to these problems. We shall be encouraged as well as edified through the week by the display of results already achieved.

How crude and speculative seem the theories of dental caries which obtained less than a score of years ago when contrasted with the brilliant demonstrations of the renowned American professor, of Berlin, founded upon patient and protracted investigation after the most approved modern scientific methods. Though from unavoidable circumstances detained at home, he has shown his interest and coöperation by forwarding a paper. There are many others whose fame is not bounded by their vocation or their country. They are known to the world as scientists and cosmopolitans. However skillful and judicious a dentist may be as an operator, this sphere of his usefulness is limited in space and not far-reaching, while these men are working for mankind at large and for succeeding generations. In view of past victories may we not confidently expect that the etiology of other still obscure diseases, like erosion and pyorrhea, may be solved so that we can either prevent or successfully treat them ?

Let us not grudge explorers of the unknown their only recompense, the meed of praise and applause for what they have done and will do for the profession and for humanity.

I am conscious that in this review of the past I have failed to do justice to the subject.

Time is so limited, and the field is so rich and extensive, that I have felt constrained to select for elaboration only those facts and movements which seemed to have had the greatest influence.

Joy and comfort have been brought to many repulsive or speechless sufferers by the improved appliances for the restoration of feature or of function resulting from malformation or disease. Orthodontia might be called a new art, from the great advance in knowledge of it and of the methods and appliances for correction, and recovery of usefulness and beauty.

But the most prominent of the prodigal topics which I have ignored is probably plastics, the increasing use of which has wrought a great change in practice, and been of incalculable benefit to humanity. From the time of the memorable controversy which caused the disruption of the first dental society to the present period, this subject has engrossed much time and talent in our societies and literature.

The so-called "New Departure" arrested the attention of every reader from its novelty and from its claim to be founded upon strict scientific experimentation. Laboratory investigations are valuable, if conducted upon strictly scientific methods ; but is not a theory based upon the observation of the phenomena as they are presented in the oral cavity also essentially scientific, if the observer is competent and the series of observations have been correctly performed? In either case accuracy of observation in connection with a clear appreciation of exactly what constitutes the scientific method, and the intelligent application of that method in the elucidation of the point at issue, is what is needed. I do not, however, attempt to discuss this subject, but only refer to it as one which has had a great influence in stimulating thought, making us closer observers, and modifying practice.

The theory of the bacterial origin of disease, and antisepsis, have engrossed much study and enthusiasm. It seemed that we were on the eve of a solution of all etiology by the isolation of the specific pathogenic germ of every disease, and that to prevent or cure all that was necessary was to ascertain and administer the proper germicide. Clinical records, however, have failed to sustain the ardent expectations of the more sanguine. The germicide has taken a place subordinate to a strict observance of absolute cleanliness, and we see acknowledged the importance of *vis vitæ* as a factor in securing immunity from the attacks of bacteria everywhere present.

Light, however, is being shed upon many mysterious bacterial phenomena by a more thorough acquaintance with ptomaines, leucomaines, and the extractives which are toxic and auto-intoxicants. Fortunate practical results have come in the character of a great reform in the care of instruments and the sterilization of everything connected with operative work.

All through the years there has been an underlying hope that improvement of tissue and greater resistive power would result from advances in prophylaxis. Apart from the improved conditions resulting from changed manipulation like contouring, or greater care in cleanliness, little has been accomplished in purely dental prophylaxis. Special feeding for the teeth or treatment in the line of therapeutics has not rewarded patient trial.

The tendency of prophylaxis to-day is to develop along physiological lines by more special and minute observance of the laws of hygiene. Proper food, its preparation for assimilation, out-door exercise, in a word, rational methods of living, are no more important for the preservation of health than for the building up of tissues throughout the whole body, of such perfectness of structure and function as to be able successfully to resist deleterious attacks. Thus viewed, prophylaxis has made great strides, in which the teeth have shared as part of the general economy. These topics and many others merit more extended consideration as factors of progress.

While I have refrained from specific mention, with two exceptions, of the living exponents of progress, I cannot close without a brief reference to the many upon our roll of honor. It would be pleasant to name them, review their lives, and pronounce their eulogy. "They builded better than they knew," and the profession and the world are their debtors. Our duties are less onerous, our paths are more pleasant, our position among men more honorable, and the health, comfort, and relief from suffering of mankind greatly enhanced as a result of the lives and labors of the noble men who, in the language quoted before, were "impressed with the belief that the resources of the science were by no means developed, and that it was their duty to devote a portion of their time and energy to the work."

Some of these apostles of progress are known to us only by their records, but the form, the features, the voice, the presence of some of them are fresh in the memory of many here present.

Can we doubt their approval to-day of our assemblage, or of their presence among us and their benediction? This congress is but a continuation upon the same lines, or a culmination of their patient, devoted, self-sacrificing work for God and man.

Under the authority of the trust committed to us by the dental profession of America, we are now assembled and organized as a World's Dental Congress, to advance the interests of dentistry throughout the world. Science and art, twin outgrowths of mentality, should know no boundaries, nor should there be any schools of thought, treasure-houses of knowledge, or gymnasia for training to usefulness, with barriers founded upon race, creed or nationality, where the health of humanity is involved. As dentists we meet here to-day, brothers of one family, with common interests, mutual respect, and unity of aspiration and expectations. With infinite care and labor the banquet has been prepared, and we are invited to partake of the ripest fruits of professional culture which could be gathered from every quarter. Let us partake joyfully, not for the pleasure of the day alone, but from the consciousness that each feast brings with it the earnest of greater strength to-morrow.

In my official capacity I bid you all welcome—a welcome to every American dentist, who has come with comparative ease, but an especial welcome to those who have traveled long and far, from foreign climes and over broad seas, bringing with them the choice perfumes and rare products of a different soil from ours, but which are indispensable to the adornment and complete furnishing of the universal banquet of good things for us and for mankind. That these may find their visit both pleasant and profitable is the wish of every one of their American hosts. And finally, let us all improve the opportunities presented, that this week may be so full of inspirations and valuable results that it shall be a mile stone in the march of dental professional progress.

PROCEEDINGS OF SOCIETIES.

AMERICAN DENTAL ASSOCIATION.

The American Dental Association held its thirty-third annual session in Kindergarten hall, Chicago, on Saturday, August 12, 1893.

The meeting was called to order at 10:30 A. M. President J. D. Patterson in the chair.

The Executive Committee reported the following resolutions:

Whereas, The date of our meeting, which was fixed for August 15, under the expectation that it would immediately precede the opening of the World's Columbian Dental Congress, has been changed because of the change in the date of holding the Congress; therefore

Resolved, That the unanimous action of the executive committee in calling the meeting in advance of the day selected is hereby approved and declared to be legal and binding.

Whereas, It has been generally understood by the members that in order that more interest and work should be concentrated in the Congress, the meeting of the Association this year should be as nearly as possible of a merely formal character; therefore

Resolved, That the dues for the current year be remitted and the Treasurer be instructed to give receipts in such form that a single payment shall cover the dues for the current and the coming year;

Resolved, That the meeting this year be adjourned without any election of officers, as under the constitution the effect of such nonelection will be to make all officers elected last year hold over;

Resolved, That all records and transactions of this year be considered as merged in the proceedings for 1894 and so published, in order that in spirit and in name the officers elected last year shall not be considered to have held office and exercised their functions for two sessions;

Resolved, That the Treasurer be instructed to pay all properly authenticated bills;

Resolved, That Old Point Comfort be selected as the place of meeting for next year.

The resolutions were considered separately and adopted except that selecting a place of meeting, for which a substitute was passed providing for nomination of places and a ballot.

The following places were put in nomination: Old Point Comfort, San Francisco, Niagara Falls, Saratoga Springs, and Lookout Mountain, and as the result of the balloting Old Point Comfort was chosen. The Association then adjourned to meet at Old Point Comfort the first Tuesday in August, 1894.

SOUTHERN DENTAL ASSOCIATION.

The Southern Dental Association met Friday, August 11, in Kindergarten Hall, Chicago; Dr. B. Holly Smith, President of the Association, in the chair.

The meeting was called to order at 11 A. M.

On motion, the reading of the minutes of the last meeting was dispensed with.

The report of the Executive Committee being called for, the chairman said that under the unusual circumstances it was thought best by the Executive Committee that the association should adjourn till the next annual meeting, allowing the present officers and committees to hold over till then. He reported that the books of the Secretary and Treasurer had been examined and found correct, and suggested that no dues should be required of the members for this year.

Dr. Beach said that as the law of the association was that each member should pay three dollars a year dues, he did not think they could legally remit the dues for the year, but they could change the regulation requiring each member to pay his dues before he took any part in the meeting. He thought that it would be necessary for members to pay their dues during the year if they were to continue in good standing.

The President decided that if the vote to remit the dues was unanimous, it would be legal.

Dr. McKellops thereupon said that he thought the dues could and should be remitted this year, and made a motion to that effect, which was carried unanimously.

The Executive Committee reported that charges were brought against Dr. E. B. Marshall, of Rome, Ga., of unprofessional conduct in having advertised, and the Secrctary read the following advertisements:

I.

DR. MARSHALL'S ANCHOR PLATE

For artificial teeth is the most satisfactory denture known, spoken of in the highest terms by the most eminent dentists, worn with comfort without covering the roof the mouth, no injury to adjoining teeth, remains immovable in masticating food, can be easily removed and replaced at will.

This denture is covered by letters patent. Made only in North Georgia by Dr. E. B. Marshall. Office, 302 Broad St., Rome, Ga.

II.

Rome has been distinguished among the dental profession by the invention of Dr. E. B. Marshall. The Anchor plates have been patented by the doctor, and patients are coming from a distance to get the benefit of it.

It is the best denture known, and held firmly in place without clasps, and can be removed and replaced at will. See ad.

On motion, Drs. Gordon White, N. A. Williams, and M. W. Foster were appointed a committee to correspond with Dr. Marshall in regard to this matter, with instructions to report at the next annual meeting.

The Secretary presented bills for stationery, etc., which on motion were ordered paid.

Dr. Gordon White moved that the Secretary and Treasurer correct the list of members and prepare a new book. Carried.

On motion of Dr. McKellops, the officers were allowed to hold over till the next annual meeting.

Dr. Marshall moved that the selection of the place of the next annual meeting be left to the Executive Committee, and that the committee be instructed to report within six months. Carried.

On motion, the association adjourned till the next annual meeting.

National Association of Dental Faculties.

The tenth annual meeting of the National Association of Dental Faculties was held in Kindergarten Hall, Chicago, commencing Thursday, August 10, 1893.

The Association was called to order at 11 o'clock A. M., President J. D. Patterson in the chair.

Twenty-two colleges were represented at the first roll call.

The Ad Interim Committee reported a case in which a student, who had attended a full term at one college, but had not presented himself for examination at the end of the term, and consequently received no certificate, applied for admission to the advanced grade in another college. Upon the right of the second school to examine such student, without certificate, the committee had ruled that the dean of the second school could exercise his judgment. This decision of the Ad Interim Committee was overruled by the association.

The Ad Interim Committee also reported in relation to a request made by the dean of the Ohio College of Dental Surgery, who desired to be informed "whether a student who regularly completed a course at a recognized college, whose six months session ended in June, may enter the class of another recognized college the following October as a regular student." The committee had held that such second entry would not be in conformity with the rules of the association. A motion to sustain the committee's ruling was adopted by unanimous vote.

A resolution offered by Dr. Truman restricting to one delegate from each college the privilege of speaking, voting, or acting on committees was adopted.

The Executive Committee reported a recommendation that applications for membership must be indorsed by two or more members of the association. The recommendation was adopted. [Takes effect in 1894.]

The application of the Western Dental College of Kansas City for membership, was again laid over for a year.

At the request of Dr. Carpenter, for a ruling upon the by-law in regard to dissections, the President ruled that the language was mandatory.

Under the call of colleges for reports, Dr. Gorgas, of the University of Maryland, Dental Department, stated that his school had under consideration the adoption of separate lectures for the three classes.

Dr. Morgan reported that Vanderbilt University, Dental Department, had abandoned the preliminary course in September, and instead would give the students a practical course at the end of the session, commencing about the middle of January, the regular term beginning the first of October.

Dr. Sudduth reported that the College of Dentistry, Department of Medicine, University of Minnesota, had adopted as a preliminary course a quiz for conditioned students. They had also changed the degree from "D. D. S." to "D. M. D."

Dr. Goddard, of the University of California, Dental Depart ment, reported that his college had increased the requirements for entrance by adding Latin to the list of studies to be passed in examination. First-course students take also the elements of pharmacy. Each student performs a graded series of experiments in metallurgy, and for the seniors a practical course in orthodontia has been in operation for several years. The sessions commencing this fall, will begin the first Monday in September and continue nine months.

The Executive Committee reported applications for membership from the following schools, which under the rules lie over to next year: University of Buffalo, Dental Department; Western Reserve University, Dental Department, of Cleveland.

The resolution offered last year by Dr. Winder, with reference to the admission of graduates in pharmacy to advanced standing, was taken up for action, and on a vote was lost.

The resolution on the same subject offered by Dr. Peirce at the last session was then taken up, amended and adopted as follows:

Resolved, That colleges of this association may admit to the junior class graduates of recognized schools of pharmacy, subject to the examinations of the freshman year.

The amendment to Article VII. of the constitution offered last year was taken up, and on motion laid on the table.

The following resolution, laid over from last year, was adopted:

Resolved, That any college of this association failing to have a representative present for two consecutive years, without satisfactory explanation, shall be dropped from the roll of membership of the association.

Dr. Sudduth moved that Latin and Physics be added to the list of subjects now required for entrance into the colleges belonging to the National Association of Dental Faculties, with the understanding that a student may take one condition, which must be made up before he will be allowed to take the junior examination. Under the rules this lies over.

The Executive Committee reported favorably upon the application of the Detroit College of Medicine, Dental Department, of Detroit, Mich., and the Homœpathic Hospital College, Dental Department, of Cleveland, O., recommending them for membership. The report was adopted as to the Detroit College which was thereupon elected to membership. The recommendation with reference to the Homœopathic Hospital College was rejected, and the matter referred back to the committee for further investigation. The committee reported later adversely; the report was adopted and the application was rejected.

The Executive Committee also reported that Howard University, Dental Department, of Washington, D. C., had requested that its application lie over another year.

The Executive Committee reported adversely upon the United States Dental College, and the report was adopted unanimously.

Dr. Morgan offered the following, which lies over one year:

> *Resolved*, That a certificate of attendance from a medical school, to be accepted as the equivalent of one course in dentistry, must show that the student attended at least seventy-five per cent of a five months' term, and also passed a satisfactory examination in his freshman year.

Dr. Truman, chairman of the special committee appointed to investigate statements made by Dr. Sudduth in a paper before the Academy of Dental Science at Boston, reflecting upon the conduct of certain dental colleges, made a minority report, recommending that Dr. Sudduth be censured for the language used. By a vote of 10 to 12, the recommendation was rejected, most of those voting in the negative stating their belief in the want of jurisdiction by the association.

A communication from the Royal College of Dental Surgeons, Ontario, resigning its membership in the association, was presented by the Executive Committee, and on motion it was ordered that the resignation lie on the table until the next annual meeting, and that the college be requested to send a delegate to the meeting in 1894.

Dr. Hunt moved the repeal of the rule admitting undergraduates in medicine to the junior grade. Laid over.

Dr. Hunt moved that the rule upon the standing of graduates in medicine be amended to read as follows:

> A diploma from a reputable medical college entitles the holder to enter the second or junior grade in colleges of this association, and he may be excused from attendance upon the lectures and examinations upon general anatomy, chemistry, physiology, materia medica, and therapeutics.

Laid over under the rule.

The Executive Committee reported the following resolution, which was adopted:

> *Resolved,* That a committee be appointed to formulate a series of subjects and questions for preliminary examinations and a minimum standard to be reached before admitting students to colleges.

The election of officers resulted as follows: H. A. Smith, Cincinnati, President; C. L. Goddard, San Francisco, Vice President; J. E. Cravens, Indianapolis, Secretary; Henry W. Morgan, Nashville, Tenn., Treasurer; A. O. Hunt, Iowa City, Ia., J. Taft, Cincinnati, Frank Abbott, New York, Executive Committee; James Truman, Philadelphia, Thos. Fillebrown, Boston, W. H. Eames, St. Louis, Ad Interim Committee.

The newly elected officers were installed, the retiring and incoming Presidents each returning thanks briefly and gracefully.

The following committees were appointed:

Committee on Schools.—J. A. Follett (chairman), F. J. S. Gorgas, Louis Ottofy, C. N. Peirce and Truman W. Brophy.

Committee on Text Books.—S. H. Guilford (chairman), J. D. Patterson, Thos. Fillebrown, A. O. Hunt, J. Hall Lewis.

Special Committee to prepare Subjects and Questions for Preliminary Examinations. Francis Peabody, W. Xavier Sudduth, Henry W. Morgan.

Adjourned to meet at the call of the Executive Committee.

The following colleges of the association were represented by the delegates named during the sessions:

Dental College of the University of Michigan.—J. Taft.

University of California, Dental Department—C. L. Goddard.

University of Pennsylvania, Dental Department—James Truman.

Chicago College of Dental Surgery—Truman W. Brophy.

Indiana Dental College—J. E. Cravens.

Columbian University, Dental Department—J. Hall Lewis.

Pennsylvania College of Dental Surgery—C. N. Peirce.

State University of Iowa, Dental Department—A. O. Hunt.

New York College of Dentistry—Frank Abbott.

Dental Department of National University—J. Roland Walton.

Northwestern University Dental School—C. P. Pruyn.

American College of Dental Surgery—Louis Ottofy.

Baltimore College of Dental Surgery—M. Whilldin Foster.

Harvard University, Dental Department—Thomas Fillebrown.

Missouri Dental School—W. H. Eames.

College of Dentistry, Department of Medicine, University of Minnesota—W. Xavier Sudduth.

Louisville College of Dentistry—F. Peabody.

University of Maryland, Dental Department—F. J. S. Gorgas.

School of Dentistry, Meharry Medical Department of Central Tennesee College—G. W. Hubbard.

Vanderbilt University, Dental Department—Henry W. Morgan.

Kansas City Dental College—J. D. Patterson.

Boston Dental College—J. A. Follett.

Northwestern College of Dental Surgery—B. J. Roberts.

Ohio College of Dental Surgery—H. A. Smith.

Philadelphia Dental College—S. H. Guilford.

Dental Department of Southern Medical College—L. D. Carpenter.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

The twelfth annual meeting of the National Association of Dental Examiners was held at the Columbia Dental Club, Chicago, Friday, Aug. 11, commencing at 10 A.M.; the President, Dr. W.E. Magill, in the chair. Owing to the death of Dr. Fred. A. Levy, the late Secretary, Dr. Edgar Palmer was appointed temporary Secretary.

The roll-call of States resulted as follows:

State	*Represented by*
California	J. D. Hodgen.
Indiana	M. H. Chappell, S. T. Kirk.
Kentucky	C. G. Edwards.
Louisiana	Joseph Bauer.
Maine	D. W. Fellows.

New Jersey	G. Carleton Brown, F. C. Barlow.
Ohio	L. E. Custer, Jas. Silcott.
Pennsylvania	C. V. Kratzer, Louis Jack, W. E. Magill.
Tennessee	H. E. Beach, J. Y. Crawford.
Wisconsin	Edgar Palmer.
Massachusetts	J. Searle Hurlbut.
District of Columbia	Williams Donnally, H. B. Noble.
Illinois	C. Stoddard Smith.
Kansas	A. M. Callaham.
Mississippi	W. E. Walker.

The following resolution, laid over at the last annual meeting, was taken up.

> "*Resolved*, That it is the sense of the National Association of Dental Examiners, that when a member of the dental profession presents a certificate of registration from the State Board of Dental Examiners, duly created by law, that the same should entitle the holder of such certificate to registration without an additional examination in any State of the Union having a law to regulate the practice of dentistry."

Dr. C. Stoddard Smith offered the following amendment:

> "*Provided* such certificate was obtained on examination."

Discussed by Drs. Donnally, Jack, Noble, Kirk, Smith, Crawford and others.

The amendment was accepted, and the resolution was then laid over till the next annual meeting.

Reports were received from the following State boards: Wisconsin, Kentucky, California (verbal), Illinois (verbal), District of Columbia, Maine, Pennsylvania, Massachusetts and Kansas (verbal).

Dr. Magill reported that there had been additional legislation passed in the State of Pennsylvania, dated June, 1893. (See *Dental Cosmos*, current volume, p. 571).

Dr. C. G. Edwards said that on account of the difficulty experienced in finding persons to move against illegal practitioners under the old law, the State Board of Kentucky had had another law passed at the recent session of the legislature, requiring the registration of all practitioners of dentistry, which it is hoped would be enforced. Dr. Edwards also reported that at the recent meeting of the Kentucky State Association, a resolution had been passed, strongly condemning the use of secret remedies in dentistry.

Dr. J. Y. Crawford said that he had given much attention during the last nine years to dental legislation, and had submitted propositions to some very good legal authorities. His thought was that laws should be introduced that would be retrospective in their action.

He thought that if the profession in the different States could agree upon what was desirable and draw up a law that would be simple and yet embrace all that was needed to protect the communities, that all of the States would eventually adopt it, and dental legislation would thus be uniform throughout the whole country. He insisted that the law should be so simple that there could be no chance of misconstruction, and that it should be drawn in conformity with the views of able jurists and intelligent people in other professions. It is not possible to draw up a law that will suit every dentist, but every reputable dentist should be taught that it is his duty to see that the law is enforced, and to assist in detecting those who practice illegally.

Dr. J. D. Hodgen presented and read the amendment to the California law passed at the last session of the legislature, which provides as a punishment for violation of the law, a fine upon conviction of not less than fifty nor more than two hundred dollars, or imprisonment for six months for each offense; half of the fines recovered to go to the common school fund of the county in which conviction occurs, and the other half to the informer.

A report from the Committee on Dental Colleges, recommending that it be established that a preliminary condition to the reception of applications to be placed upon the list of recognized colleges be admission to the National Association of Dental Faculties, was adopted.

On motion, it was ordered that applications received at this meeting lie over until next year.

The Committee on Colleges presented its final report, which stated that of the recognized schools for the session of 1892-1893 the number of students was: Freshmen, 1429; Juniors, 927; Seniors, 433; Graduates, 320; Post Graduates, 44, one school not having reported. Of the unrecognized schools the number of students was: Freshmen, 111; Juniors, 54; Seniors, 22; Graduates, 20.

The committee also reported, through its chairman, Dr. Jack, the following list of colleges recognized by the National Association of Dental Examiners as reputable, as reported by the Committee on Colleges for 1893 and 1894.

1. Baltimore College of Dental Surgery, Baltimore, Md.
2. Boston Dental College, Boston, Mass.
3. Chicago College of Dental Surgery, Chicago, Ill.
4. College of Dentistry, Department of Medicine, University of Minnesota, Minneapolis, Minn.
5. Dental Department, Columbian University, Washington, D. C.
6. Dental Department, National University, Washington, D. C.
7. Northwestern University Dental School, formerly Dental Department of the Northwestern University (University Dental College), Chicago, Ill.
8. Dental Department of Southern Medical College, Atlanta, Ga.
9. Dental Department of University of Tennessee, Nashville, Tenn.
10. Harvard University, Dental Department, Cambridge, Mass.
11. Indiana Dental College, Indianapolis, Ind.
12. Kansas City Dental College, Kansas City, Mo.
13. Louisville College of Dentistry, Louisville, Ky.
14. Missouri Dental College, St. Louis, Mo.
15. New York College of Dentistry, New York City, N. Y.
16. Northwestern College of Dental Surgery, Chicago, Ill.
17. Ohio College of Dental Surgery, Cincinnati, Ohio.
18. Pennsylvania College of Dental Surgery, Philadelphia, Pa.
19. Philadelphia Dental College, Philadelphia, Pa.
20. School of Dentistry of Meharry Medical Department of Central Tennessee College, Nashville, Tenn.
21. University of California, Dental Department, San Francisco, Cal.
22. University of Iowa, Dental Department, Iowa City, Ia.
23. University of Maryland, Dental Department, Baltimore, Md.
24. University of Michigan, Dental Department, Ann Arbor, Mich.
25. University of Pennsylvania, Dental Department, Philadelphia, Pa.
26. Vanderbilt University, Dental Department, Nashville, Tenn.
27. Western Dental College, Kansas City, Mo.
28. Minnesota Hospital College, Dental Department, Minneapolis, Minn. (Merged into No. 4).

29. St. Paul Medical College, Dental Department, St. Paul, Minn. (Merged into No. 4).
30. American College of Dental Surgery, Chicago, Ill.

On motion, the report of the committee was adopted, and the thanks of the association returned to the committee for their services.

The election of officers for the ensuing year was then proceeded with, resulting as follows: J. Searle Hurlbut, President; M. H. Chappell, Vice President; J. D. Hodgen, Secretary and Treasurer, 917 Sutter Street, San Francisco, Cal.

Adjourned to the time and place of the next meeting of the American Dental Association, Old Point Comfort.

THE WOMAN'S DENTAL ASSOCIATION OF THE UNITED STATES.

The meeting of the Woman's Dental Association of the United States was held in the Memorial Art Palace, Friday, Aug. 18, 1893, commencing at 10.30 A. M. Between thirty-five and forty women dentists were present.

In the absence of the President, Dr. Mary H. Stillwell, the meeting was called to order by Dr. Emma L. Benham, and on motion, Dr. Elizabeth Davis, Philadelphia, Chairman of the Executive Committee, was called upon to preside.

The Secretary, Dr. Eliza Yerkes, read a letter from the President, expressing her regret at her unavoidable absence. The President spoke of the apathy of women practitioners toward any concerted efforts for their own advancement, but the work of forming an association of women dentists had been accomplished, and the movement would doubtless prove of the greatest advantage to all women practitioners.

The Corresponding Secretary, Dr. Anna T. Focht, Philadelphia, in her annual report, laid great stress on the fact that great indifference had been exhibited in the matter of replies to letters and circulars sent out from her office.

A brief review of the history of the National Association was given by the Recording Secretary. The first meeting looking toward such an organization was held March 19, 1892, and a charter was obtained in July, 1892. At the present date there is a membership of thirty-three registered women dentists, with six applications under consideration.

The Treasurer's report for the year showed a small balance on hand.

The roll of States represented in the Association was then called for, with reports from the several Vice-Presidents.

The Vice-President from the State of Illinois reported that there are in the State five colleges recognized by the National Association of Dental Examiners as reputable. Unfortunately two of these refuse to admit women as students. There are eight registered women practitioners in Chicago, one in Springfield and probably others in the State. Woman's work in dentistry is recognized as creditable and satisfactory.

The officials of the World's Columbian Dental Congress have shown the most favorable disposition toward women dentists, but the women themselves have been slow to respond. Women physicians and women dentists work harmoniously together, especially since the more general recognition of the reflex of the fifth nerve. Dentistry is recognized as a specialty of medicine, and women dentists must make every effort to rise proportionately. I hope then that our women will come forward and take hold of society work, the surest method of self-elevation.

The Vice-President from Massachusetts said she only knew of five women practitioners in her State. The Boston Dental College admits women students on an equality with men. Harvard does not yet admit us, but as one of their professors said to me, you are knocking at the door so loudly that we have got to do it.

The representative from Maryland said that she occupied the forlorn position of being the only woman practitioner in that State. Women were not admitted to the colleges nor to the societies, except on one occasion she had been offered a position on a committee requiring the payment of a fee.

The Vice-President from Washington, D. C., sent the sad message that she was writing from the bedside of a dying father and could furnish no report.

The representative from Rhode Island said that she also claimed fellowship with Massachusetts, as she was a graduate of the Boston Dental College. She was a member of the State Society and had never met with any professional opposition in either State.

The representative from Wisconsin stated that six or seven ladies were practicing dentistry in that State, and they seemed to be gladly welcomed by the people.

The Corresponding Secretary now read a most interesting letter from Prof. Jas. Truman, relating the struggles marking the admission of women into the dental colleges. At the conclusion of the reading, on motion of Dr. Hirschfeld, the first woman graduate in dentistry, a rising vote of thanks was tendered Dr. Truman in recognition of his services in the cause of woman in dentistry.

Dr. Truman responded with great feeling to this mark of appreciation.

The Chairman of the Association hoped that some action would be taken to give the letter of Dr. Truman greater publicity than would be secured by its publication in the annual transactions of the Association, which would reach only the members of the Society, and a committee was therefore appointed to see that proper publicity be secured.

Dr. Benham thought that as a history of women in dentistry it should have a place in the transactions of the Congress beside that of Dr. Shepard giving the history of what man has done in dentistry. The photographs of Dr. Truman and Dr. Taft were also desired for a place in the transactions of the society. It was stated that the Baltimore College of Dental Surgery had graduated eight or ten women while Prof. Gorgas was Dean of that institution.

The question was asked as to the number of women graduates in dentistry. The reply was made that the present location of about one hundred and fifty was known, though there were more than that number, as many had made no response to letters, which, however, had not been returned to the writer. The colleges know how many they have graduated, but they cannot keep track of their locations.

Certificates were read showing that Mrs. E. R. Jones had, prior to 1859, assisted her husband in his dental practice, and had continued it after his death.

The recognition of the society was given to the labors of Dr. Hattie E. Lawrence in forwarding the interests of the present meeting.

The representatives from Colorado, Missouri, Montana and Nebraska presented their respective individual reports, and Mrs. J. M. Walker spoke for the women of the far South.

A message of greeting to the absent President was voted, and the association then adjourned.

THE DENTAL REVIEW.

Devoted to the Advancement of Dental Science.

PUBLISHED MONTHLY.

EDITOR: A. W. HARLAN, M. D., D. D. S.

ASSOCIATE EDITORS:

C. N. JOHNSON, L. D. S., D. D. S. T. L. GILMER, M. D., D. D. S.

THE DENTAL CONGRESS.

The Dental Congress, as most of our readers are aware, has completed its work as a congressional body and the members have scattered to their homes. The remaining labors are for the publication committee to whom the task of getting out the transactions has been entrusted. Considering the number of the papers read and the discussions thereon, with the reports of committees and the history of dentistry in the United States, there is a probability of there being two volumes of 600 to 800 pages each. If the transactions are of value, all dentists who could not be present in person at Chicago, will have the opportunity of securing them on the same terms as those who were in attendance. The committee will not undertake the publication of more volumes of transactions than will be needed for distribution to members of the congress, public library and the dental societies contributing money in aid of its financial success. Any one desiring a copy of the transactions will have to send $10 in advance to the treasurer, Dr. J. S. Marshall, 34 Washington Street, Chicago, otherwise they cannot be procured as the plates will be destroyed immediately after publication.

AN OPEN DOOR.

The recent graduates from the dental departments of Harvard and Michigan, including those who had already begun their studies in those institutions, are not necessarily debarred from practice in Great Britain as no action taken by the Medical Council can be retroactive. The composition of the Medical Council is on such a high basis that it only needs to have its attention called to the fact that no notice of the intended action of the council having been served on those already in curriculum they have the vested right of appeal to be placed on the register as dentists in conformity with the rules already laid down for the guidance of foreigners. The graduates of Harvard and Michigan in previous years have an equal right to registration provided they are not English subjects. The latter proposition may not be considered an unjust demand as the custom has been to recognize preliminary examinations by the medical schools years afterward. In the interest of those engaged in *bona fide* studies with the object of commencing practice in Great Britian it certainly is a great injustice to deprive them of the opportunity of doing what they set out to do. The Medical Council, we have no doubt, when attention is called to this matter will act promptly and not unjustly. The right of petition is usually much respected in England and none are less prone to do unjust things than the English. We understand that several of the graduates of Michigan intend applying to the Medical Council for registration under the previous ruling. We see no reason why, in justice to the actual students, that the freshmen and juniors of 92–3 and 93–4 have not the same right.

INTERNATIONAL MEDICAL CONGRESS POSTPONED.

It was announced officially on Saturday, August 19, that the Rome Medical Congress had been postponed until April, 1894 The fear of cholera was the probable cause of postponement. We trust that there will be a large attendance in April as it is a delightful month to visit in Rome. We regret that the conclusion to postpone was not earlier announced as the foreign attendance in Chicago would have been increased and the Pan-American Congress at Washington would have been benefited likewise. In 1894 let all eyes be turned on the road that leads to Rome.

OPENING OF THE CONGRESS.

Whatever may be the final outcome of the Congress, whatever the effects upon the profession at large, whatever the influence upon dentistry for the future, there is one thing assured that the opening was probably the most auspicious that has ever before marked a similar gathering in the history of the profession. From the opening address of President Bonney of the World's Congress Auxiliary to the formal reception of the Foreign Representatives and their graceful responses the whole proceedings passed off smoothly, and with the promise of great things to follow through the week.

President Shepard's address was a masterpiece—a credit to the man and his position. All of the foreigners did themselves honor in their responses, and we wish them to feel while here that they, with us, are all members of one great brotherhood that knows no east, no west—no north, no south—a brotherhood that has no sectional lines of discrimination to prevent the fullest harmony of action.

The hearty reception that was extended to Dr. Cunningham of England both by the chair and the audience, and the feeling response which it brought forth from our British brother will go far toward healing any breach which may have existed between the dentists of the two countries on account of the action taken by the English societies in regard to the Congress. As Dr. Cunningham said, it was an "accident" which he hoped would soon be forgotten. We certainly have no ill-will against the dentists of England, and we especially wish to welcome those who are with us this week. We can forget a difference of opinion as quickly as any, and as for those who sought to stay in England we have only the words of their worthy confrere in his response—"they will lose more than the Congress will." C. N. J.

PROSTHETIC CLINICS.

On Thursday morning Dr. Geo. Cunningham, of Cambridge, Eng., began his demonstration of the uses of a new low-fusing continuous gum. By a long series of experiments with mixtures of ordinary colored glass and vitreous enamels, and with the aid of technical literature on the subject together with assistance from experts in the manufacture of Mosaic work, he has succeeded in obtaining a body whose low point of fusibility extends its usefulness in a variety of ways. He opened up a very interesting collection of small muffles and crucibles suitable for the work.

He first exhibited some artificial teeth, which, by means of the low-fusing body, he had tinted in different shades, showing the value of the process in obtaining the most artistic results in teeth bought at the depots, which were all that could be desired, as to size and shape, but which, in color, lacked the individual characteristics demanded of the case. His tooth-colors were numbered, and he gives the following directions for their management:

No. 1 will not stand soldering with No. 1 solder. No. 2 will stand soldering with No. 2 solder, if great care be taken not to get the teeth hotter than necessary.

No. 3 will stand soldering with No. 3 without risk. All the parts of the tooth must be covered with the investing material. Vulcanizing: Some of the colors come from the vulcanizer quite different from those invested but this can generally be rectified by the pumice brush.

If these colors are fused in the small furnace, they must have a good thick coat of glass upon them or else they will not glaze. The color can be put on better with a spatula than with a brush. Another use for this material was shown in an artificial crown, where the connection between the porcelain tooth and metallic cap was made by the fused body. Pitting, grooving and otherwise marking of the depot teeth in imitation of natural ones in partial cases were exhibited, showing very artistic effects.

ETHICS AT THE CONGRESS.

The mass meeting idea has been almost entirely abolished by the Executive Committee in the conduct of affairs at the present Congress. This may have occasioned some comment from those on the outside, because gatherings of this kind, and especially dental gatherings, have usually been freely opened to all. In fact criticismshave often been made in the past that all sorts and conditions of men have been allowed to come into the sessions and to avail themselves of the privileges of the clinics without contributing in the slightest degree to the support of the meeting. In the present instance it was learned that many unworthy men contemplated doing the same thing. Some who could not qualify for membership on account of their unprofessional methods were determined through selfish motives to get all the benefit they could from the Congress. Others, who were eligible for membership, but who through disaffection or a desire to save their ten dollars failed to register, sought admission and were justly refused. This Congress has cost an immense amount of energy and a great deal of money and no selfrespecting man would ask to gain any benefit from it without being willing to contribute to its support.

The sentiment of the whole Congress is that the proper thing has been done, and while some of the black sheep are no doubt disappointed, the men who joined the Dental Congress of 1893 will always have the satisfaction of knowing that they were associating with the reputable element of their profession and not rubbing elbows with the rag-tag and bob tail of dentistry.

C. N. J.

AU REVOIR.

At the opening of the Congress we gave a word of welcome to the visiting members in attendance. We asked them all to feel at home while in Chicago. We promised to do whatever we could to make their visit a pleasant and profitable one, and we said that we hoped to send them away at the close of the Congress with a warm spot in their hearts for Chicago. Whether we have succeeded in perfectly fulfilling our pledges or not we are unable to judge. The hurly-burly and incessant work of the Congress has left us with little capability for judging anything.

But there is one thing about which we are certain, and that is that no city in the world has ever before been honored by such a gathering of dentists as has met this week in Chicago. We, of Chicago, take much pride in this fact and we feel that, with all the energy we have been able to exert on behalf of our visitors, we have fallen far short of giving them that royal entertainment that we had mapped out in our hearts as their just desert.

But the time for saying our good-byes has come. The curtain will soon fall upon the last scene in the greatest dental meeting ever held, and when the final word has been said and the gavel has sounded adjournment for the last time, we believe that all who have taken part in the Congress will agree that this has been the event of a lifetime, and an occasion never to be forgotten.

Through our visitors, we send a word of greeting to the dentists of the whole world. We trust that the Congress will prove a harmonizer in the profession. It has succeeded in leveling factions in the United States, and we look for it to bring us into greater unity of purpose and sentiment with the dentists of other lands.

Au revoir! We were glad to greet you—we are sorry to see you go. C. N. J.

CLOSING DAY.

To-day will witness the closing exercises of the World's Columbian Dental Congress. The year 1893 will be memorable in the annals of dental surgery for the United States if not for Europe and other civilized countries. It is hoped that other convocations of the year will share in the general good that will result from the three great meetings, Chicago, Washington and Rome, Italy. The energy of the Americans has been devoted with the most brilliant results to the success of this Congress, very properly we think, as it was first in the field and the time and place offered the best facilities for holding it. There can be no question of the value of the proceedings of the Congress when published, and it is the manifest duty of the profession in America to secure the volumes for a permanent resting place in libraries both public and private. Seldom have we found the dentists of this country lacking in patriotism when the call was made for its display. Send your name to the Secretary for a published volume and assist in defraying the expenses of this herculean undertaking. To the members of the Congress present in Chicago we extend our congratulations and wish them a safe return to their respective homes.

THE CONGRESS.

The World's Columbian Dental Congress is an actuality. The hopes and fears concerning it which may have existed have all been replaced by realizations which are most gratifying. The first day's session is now a part of history, and it is certain that no previous international or other gathering of dentists has started out more propitiously than did that inaugurated yesterday. From all parts of the world there are representatives in attendance, and the truly international character of the gathering was most fully exhibited in the responsive addresses of the foreign representatives in their native tongues.

Taking into consideration the financial depression, which appears to be almost equally international with the Congress, it would seem that for the first day, the attendance should be considered very satisfactory indeed. That there will yet arrive many more who will become members there is not the slightest doubt; it is never possible for all to be present at the opening session, especially if that be held, as in this case, on the first work day of the week. To-day and to-morrow will witness a large addition to the registry list.

It was hardly to be supposed that on inauguration day any material work would be accomplished in the sections beyond organization, this however, was accomplished, and the machinery is now all ready and active work will commence this afternoon.

In order to get the greatest good from the Congress it is well that the members should choose early those sections in which they are most interested, and give to them their individual attention, as but little good can come from flitting from one section to another.

The inaugural address of the President of the Congress was a dissertation eminently appropriate and in good taste. It was not too long, but still sufficiently so to cover the historical ground of the profession very fully from its birth in 1839, to the present time, bringing out particularly the distinctive evolution features made in its progress.

We congratulate Dr. Shepard on the address and his first day's work, and rejoice with the Congress in the selection by the Executive Committee of one so well equipped for the discharge of the important duties devolving on the Chairman of a body of men so representative of the best intelligence of the profession.

The distinctive harmony and interest which prevail on all sides give assurance of rich fruits to be harvested. If there is a faction, the most astute microscopist has been unable to focus it. But one purpose prevails among the members, and that is to lend their entire influence to the forwarding of the best interests of the Congress.

G.

DOMESTIC CORRESPONDENCE.

LETTER FROM NEW YORK.

To the Editor of the Dental Review:

Dear Sir; On to Chicago. *Veni, vidi.* Button, button, who has got the button? Touch the button and you could come in; if not, it was no use. The ones that could not touch the button missed a good thing. It was all the management hoped for or could desire. We met W. W. W. on Thursday P. M. going to his couch for rest; he was exhausted, but full of satisfaction. He did look pale, and why not? He and Dr. Hunt, Secretary of the Executive Committee, have worked indefatigably from first to last. The laborer is worthy of his hire, and they have their reward. President Shepard, well, his head shone like a billiard ball. He was just handsome, and running over with satisfaction. Why not? He did his best, and could of course do no more. Oh! if everyone would do his best. The secretary-general, cool as a cucumber, and as smiling as a tulip. "What can we do for you?" He was full of satisfaction, too, and why not? What four men have done more, or could do more than these four to achieve the brilliant success? The reception given at Kinsley's, Saturday evening previous to the opening of the congress, was complete in everything; not a wrinkle in the dress suits, although not demanded. Such a nice sprinkling of fine women. How it displayed the good taste of the dentists; and the President was the great light around which all the lesser ones shone. How all vied with the others for sparkle! Everything was just nice. Nothing could have been more *recherché*. It foreshadowed the coming events; and they came in their fullness. Those who were never in Chicago can have no conception of the miss they have made in not going. There is but one Chicago, big in all ways of looking at it; 1,800,000 population; streets twenty-five miles long, and paved for seventeen; a building twenty-one stories high and 150 dentists as tenants. Drinking water, the finest to be had in the world right out of the bottom of Lake Michigan. And such gems of parks as we were riding about, we were full of wonder and praise. Such floral gardening, never have we seen anything before to compare with except in the public garden in Boston. On the borders of the park a fringe of beautiful residences such as few cities can boast of, Mrs. Potter Palmer's eclipsing them all. So much like the beauty herself as we saw her presiding over the Women's Congress in the Woman's Building on the Fair grounds. Nothing ever could or ever has surpassed the World's Fair in Chicago. The half cannot be told. The architectural features of the buildings would alone pay one of refined taste for a visit. We could only take a general view, noting a very few things in particular. The California exhibit had notes of praise from all; works of art, what a treat! We saw the Spider and the Fly in the English collection of paintings. The story was quickly told. It is easy to get in, but only a little way to the prison, as was fully shown in the five pictures. A marble bust with such a smile as we had never seen executed in stone. We saw smiles all about the grounds, and how varied they are as brought out in the human face. It was a wonderful pageant. None too much praise can be bestowed on the managers. They who laugh last, laugh best. But it will not be the squabbling politicians in New York, who lost the chance which Chicago secured. Long live Chicago! Midway Plaisance! What dentist or other person did not take that in? He who shut his eyes there was blind to an object lesson that will not come in the lifetime of many. New Jersey everywhere. We met him, and he said, "Go and see Darkest Africa!" And we did, and then we saw the naked truth of all he said. Well, they will some day put on their clothes when their eyes are opened by the light that will come in the east; and then they will know that they are naked.

In the meantime there is no inducement for the Jew clothier to go East. Old Vienna was an attraction, more than the sandwiches at twenty-five cents apiece, and poor at that, very. Cairo was all right; you got your money's worth, and all true to the original. We did not ride the camels nor the jackasses, but we saw a few riding on the donkeys. Speaking of smiles, we saw scarcely any who had smiled too often, and not a dentist from first to last. Good! What a lesson one can learn from the vast collection of nationalities with their representative homes, costumes, etc.; a rare treat. We got tired some, but the Café Marine we found more to our liking than any other for real good refreshments at good round prices, but no use grumbling if we felt like it; we did not get on a grumble during the entire stay in the wonderful Windy City (?) of the plains. How nicely every one behaved! everywhere we met them, although we suppose most of the crowd were aliens with only here and there a Chicagoan sandwiched in. We only received one uncivil answer and that was from a shoe string man. We asked him to direct us to the elevated station. "Why, it's down thar where it allers was." He looked like a fellow from nowhere, and about to move on like the King tooth-pullers do when there victims are all out. We felt a good deal like the fellow who came to New York once. When he went home he told his folks he only saw one business he would have liked to have gone into and that was the postoffice where they were taking in money from morning until night. So I thought of the city railroad business. How nicely they handled the masses with their really rapid transit cable system, and how they doubled up cars for a train. New York can beat them for style on the new cable road on Broadway, but it has something to learn in ease and quietness of handling, which they will do by practice. We went to church. Yes, this we do at home. We did not hear anything mor e helpful than we heard at Trinity Methodist Church onthe South Side. The preacher found a lesson for good thought out of the fair grounds, even on and beside the Midway Plaisance; yes, in the naked truth. We have the light and truth at our door, they are in darkness. What does it teach us? It ought to be, and it will be more and more, "Go East, young man." Not for the dollars but for the good we can do to our fellow men. Is there any reason that a dentist may not carry the truth to the benighted in whatever land he may be? We recall a remark of Dr. Willie Morrison, of St. Louis, after a trip around the world. Speaking of India, he said there was a fine opening for a man of ability and character. Too many are after only a reputation. That is what others think. Character is what one thinks of himself. "As a man thinketh so is he." And we are to have the mind of the Creator of Mind.

Well, and what did we hear and see at the International Dental Congress? We saw the biggest collection of dentists the world ever saw. There were many good looking men; smart men and smarter ones; big heads and little ones; clean finger nails and some not so. Don't forget what Lawson Tait, of England, the eminent surgeon, told the German what he esteemed essential to his success in his abdominal operations, "Keeping his finger nails clean." There were some sweet breaths and not a few not so. A few with dress suits, and some that never had and most likely never will have one, but all were harkening around and taking in what they saw and heard.

Thirty years makes many changes. We noted them, for we met with the American Dental Association in Chicago thirty years ago; and so many are gone now across the border line. Chicago lost much when Dr. Allport was removed from earth; St. Louis, when Judd, Forbes, Peebles and Spaulding disappeared. George Watt gone, and our Atkinson. They have made the way easier for those who are following on in the way they have cast up. We saw many whom we expected to see, but how many more whom we had never seen before! Yet not a few that we felt an acquaintance with because of their writings. We had never met Dr. Thompson, of Topeka, but we knew him by his writings by which he has stamped himself on the pages of our literature as one of our ablest writers. We met one whom we had known a little about, and we judge he has thought he knew something about us. The first time we met him we knew him by his position, but the second time we did not know him. We were looking at a very striking photograph in the club, and we asked who it was—it was so large and impressive. Some one standing by said, "You were not at the meeting of the A. D. A. were you?" "Yes," I said, "but is that the President?" It was! Well, he has very strong features and comes out in a photograph, and he presides well. Old Point Comfort is the point of next meeting; a fine place for sea air, good hotels (and mosquitos), real grey legs all the way from Jersey, but we can't have the whole world. Then we would have many things that we don't want. San Francisco said it wanted it, but they did not see much following. They had not organized for it. If you were Younger you would know that it was necessary to have better prepared. We think it would have been pleasant and helpful if the body could have voted to go there. They have got something to show more than ordinary—a new journal—and a bright one, on good paper with clear type. We do not fancy the name. We think *Pacific Dental Journal* would be far more appropriate. It ought to be sustained, and it will be if it puts ability into it. Dr. Charles Atkinson has an article in it that is full of meat—if one can be patient to pick the bone. "Nearest the bone the sweetest the meat." No one has gone out on the line he has commenced to let out. We must follow it, for there is much knowledge in that direction, that has not yet come into our comprehension. We cannot settle some questions unless we do know more that way. If the doctor cannot do all that his illustrious father did, we think it is in him to do some things well that are the demand of the hour. Foreign dentists gave quite a variety to the congress. It seemed a little queer to listen to them by interpreters, but when it comes before us on the printed page it will prove interesting we think, and we hope, profitable. Dr. Cunningham, of England, is a good specimen of a Johnny Bull—a clear-headed thinker, and good speaker. We were well impressed with Dr. Mitchell, and he seems to understand the position of the English dentists regarding the rejection of our American degrees.

Skill is not endangered by any hasty and foolish move by the unskillful. Quality will tell the world around. Dr. G. C. Daboll was looking finely. No indications of poor health. He has become an expert on the bicycle ; rides in the Bois de Boulogne in the early morning, and breakfasts in the woods, and on his return takes a cold bath and finds himself vigorous for a good day's work in the office. He has been appointed one of the emeritus professors of the (new) New York Dental College. The doctor has got some practical ideas, and he will have an opportunity of expressing them. Dr. Daboll knows how to fill teeth better than many. Dr. Thomas Evans will also hold a place of honor in this school. From what we hear, the school is going to catch onto the idea of teaching dentistry by clinical instruction, a very wise move. Dr. Lenox Curtis is a wide-awake, and has no time for fooling over personal ambitions, but wants to elevate his profession more (than Dr. Curtis). Dr. Burnett, from Uruguay, and Flagg, from Paraguay, were bright delegates from their countries. Dr. Flagg is well-known in New York for his superior skill. Madrid had a polished gentleman in the person of Dr. Portuondo. Dr. St. George Elliott never looked so good in health. Practice has attractions for him and he goes back to London again. No grass grows under his feet. McKellops was looking fine as a feather.

Willie Morrison, always so, Seneca Brown, genial and substantial, he wears well ; a real good fellow, long may he wave. We last saw him coming from the Midway Plaisance. Talbot returned smiling ; no irregularities in him, they are all in his valuable book. But even now he cannot rest ; he has new fields to investigate. We told Dr. Crouse that he did not seem so social as formerly. One or two questions settled it. He is in a brown study, some thing is maturing in his active brain. We told him in any event, to take care of his health. What lots of good things can be said of you when you are not here to get the cheer of them ! Never mind. You are not gone mad for fame, and will not. Some of our men are fixed good ; that makes the future of our calling's purpose sure. Dr. Horton, of Cleveland, is a very young looking practitioner for seventy-three. He gave us something to hope for, coming from a son of his, in the direction of electrodes for lessening pain in preparing cavities for filling. The doctor placed it before us strongly, but it seemed to be backed up by good sense. His son has already received honor for his invention from the French Academy in the shape of a gold medal. That is tangible. Dr. Hewett made a good impression relative to his method of dealing with sensitive dentine. We refer all to his article in the June number of the *Review*. How some men take a real bona fide compliment. We told one good fellow that he was, without a doubt, the ablest odontologist we had. How he tried to appear that he did not think so. We believe in giving praise where it belongs. A worthy compliment was paid Dr. Bonwill in connection with his very able paper. It came by the way of the late Dr. Atkinson, claiming for him the ability of being the ablest physiological mathematician we have, but the *Cosmos* cut it out of their published proceedings, a curious quirk ! We think history is not complete without these recognitions, and we do not consider that journals are true to our professional interests, which will not record them.

We attended the Congress with the resolve that we would not chafe at any thing that might not be just as we would have it. The management had things matured and seemed to think that they must stand by their planning and trust to what might follow. If we had had any desire to interfere it was all hushed after we witnessed the experience of one good and *true man* trying to get in a motion. *It could not be done, and it was not.* We think under the circumstances, considering all things, the atmosphere was fairly kept clear. No friction ? Oh, yes ! but it was kept down and out. Time will tell the outcome. The international Dental Congress was a very well-behaved body of men. We met lots of them eating "pie" in the basement; and it was *good* "pie," too. We never realized how very clear New York is until we returned. Chicago can't keep its face clean if it tries; It is out of the question. We know a soft thing when we see it. It sticks all over the face of everything in Chicago; yet, we acknowledge this; for downright strong-go-ahead-energy, Chicago has got it. Thirty-three millions put into such a big show and don't expect their money back and glad if it pays expenses, that shows stuff of a caliber that all the country might be ambitious to acquire and reap great profit by it. But we do like New York all the same as a place to practice our calling. We have got something that Chicago has not. As we think it all over we are glad that we have seen the whole affair. It will be a joy for years to come. The proceedings will read well, and we will have ample time to digest them. One thing we will speak of as not being in accordance with our thought. We could not take them in intelligently. It was the arrangement of the sections. We like the mass meeting altogether, yet, we think the vote of the Congress would favor our idea. The clinics had full houses but we did not or could not take them in to our satisfaction. It will be a fine change of quarters that the Chicago Dental College is going to make, judging from the photo showing off the building hanging in the clinic room. It all shows signs of success. We saw that the New Dental Department building of the University with which they are connected was started only lately and the corner stone laid by Prof. Brophy and the address by Prof. Harlan, both dentists. This shows that we are beginning to manage our own affairs; this is a step in the right direction. How much money and energy has New York put out in this direction? Dr. Atkinson often said truly that "there were so many dentists that felt they were almighty in New York, they would not unite for the good of professional progress." Chicago is giving them some object lessons. How about the New York correspondent of the Dental Tribune? He seems to have a bee in his bonnet. After all, he is kind of good-natured, but there is more wax than honey in it. Bumble bees are very large when just hatched. For one we are grateful for the enjoyable time afforded us in Chicago. If every one has got home and feels as well as we do, we are glad. New York is very quiet, and there will not be much doing in a professional way before October. Not many dentists attended the Congress. We predicted that it would be so; and also the same for New England. Well, they missed the opportunity of a lifetime. We only wish that all were as pleased as we. We took our wife and one daughter, and at not a dollar's expense to us. "No good thing will he withhold from you."

QUIDNUNC.

REVIEWS AND ABSTRACTS.

CONCERNING THE SIGNIFICANCE OF PHAGOCYTOSIS, by John C. Hemmeter, M. D., Ph. D., Baltimore, Md.

My object in the following abstract concerning phagocytosis is to present some recent interpretations of the last part of the theory of Metschnikoff, to which the latter still clings, namely, that the destruction of bacteria by leucocytes forms part of the general process of destruction of bacteria in the tissues of animals refractory to certain diseases, and that the destruction of microörganisms in living tissues is accomplished by the cells of the body and by the cells only.

In 1886* Pfeiffer first proved by systematic experiments, that certain chemical substances attract bacteria, and others repel them and Baumgarten† explained the facts observed by Pfeiffer as having an important bearing on the movements of both cells and microbes within the infected human and animal body. The method of Pfeiffer consisted in placing the chemicals to be experimented on in tiny, very thin glass tubes, sealed at one end, which were submerged in fluids containing the organisms. The latter enter the tubes, if the substances have an attraction for them. For this phenomenon of attraction Pfeiffer invented the name *chemotaxis*. In case organisms were attracted to a substance he gave it the name *positive* chemotaxis; in case they were repelled, *negative* chemotaxis. Some substances which neither attracted nor repelled he called *indifferent* substances.

It is not clearly stated how indifferent substances are to be distinguished from substances of repelling chemotaxis. In both the tubes were free from bacteria.

It is necessary to refer also to the experiments of Hess.* Hess studied the fate of anthrax bacilli injected into the circulation of the frog. Frogs are immune to anthrax. Metschnikoff and his school held that "the bacilli are taken up by the leucocytes of the frog, and there undergo gradual destruction. After huge quantities of anthrax bacilli had been injected into the circulation of the frog, Hess found that very few could be discovered in the blood after three hours, and after six hours none at all. On placing a small quantity of a culture of virulent anthrax bacilli, contained between Ziegler's plates, into the tissues of one of the most susceptible animals to anthrax, the rabbit, comparatively very few leucocytes entered the culture. In case an attenuated form of anthrax culture was used in place of the virulent, leucocytes in large quantities entered the space between the plates and surrounded the organisms. It is important to bear these observations of Hess and others in mind, namely, that in case virulent cultures were introduced, few leucocytes entered the space between Ziegler's plates, whereas, when attenuated cultures of anthrax bacilli were used, to which the rabbit is immune, the leucocytes entered the space in large numbers. This observation corresponds to that of Tchistovitch.† He found that when rabbits were inoculated with attenuated cultures of the diplococcus Pasteuri in every case there was an increase in the number of leucocytes in the blood. But when virulent cultures of the same organism were inoculated there was a marked reduction in the number of leucocytes, which reduction became more and more apparent toward death.

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*Centralblatt f. Bact. u. Parasit., ix., 14, 15, 16.

†Jahresbericht, iv., 2, p. 358.

*Virch. Arch., B. cix., 1887.

In the last Crocnian lectures, delivered by J. Burdon Sanderson before the Royal College of Physicians, he draws attention to the difficulty of supposing that in the spread of traumatic erysipelas the invading myriads of streptococci can be effectually opposed by the leucocytes which follow in their rear. A similar difficulty exists as regards the more specific infections. If phagocytes are to be looked upon as policemen whose business is it to watch over the safety of the organism, they ought to present themselves in force wherever and whenever there is great danger. Now Metschnikoff's own observations, confirmed as well by his supporters as by his opponents, show that this is precisely what does not happen; that is, that although it is perfectly true that leucocytes take part in the local reaction to which the entrance into the organism of many pathogenic microbes give rise, they neither appear at the place nor at the time they are wanted. (Burdon Sanderson adds, that in this respect they are like policemen). Indeed, if we compare the reaction which a mitigated culture produces in the subcutaneous tissue of a healthy animal with that which is evoked by a virulent one, we find that the main point of difference is that whereas in the former case, where there is no danger, our policemen assemble in force, they are either entirely absent or appear in scanty numbers where danger is imminent. It is not the aim of this report to give the literature on the subject of the function of leucocytes, nor of their role in inflammation, nor of their chemotaxic relations, but simply to indicate valid reasons for believing that Metschnikoff's theory of phagocytosis is not sufficient to explain immunity. E. Klein, M. D., F. R. S., in a lecture at the Royal Institute in February, 1891, made the following remarks: "It must seem very extraordinary that the presence of phagocytes should be really a true explanation of the refractory state of the frog toward anthrax, considering that the bacilli, like other minute particles, when injected into the dorsal lymphsac, would be absorbed and brought into the circulation in a few minutes, nay seconds, at any rate some hours before the phagocytes have got into the lymphsac in sufficient numbers to battle with the bacilli." He continues: "It is important to say, 'in sufficient numbers.'" The question of importance for the theory of phagocytosis is obviously one of numbers of leucocytes present. Frogs kept in the laboratory never contain more than a few drops of lymp in the lymphsac, and the number of lymphcells, though great in the microscopic specimen, is insignificant, if compared with the enormous numbers of spores and bacilli that can be and have been injected into the lymphsac of such frogs without producing anthrax."

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†Annales de l'Institut Pasteur, July 25, 1891.

The point is not whether there are numerous leucocytes present in the lymph sac—which nobody disputes—nor whether some of these leucocytes contain the bacilli—which, also, nobody disputes; but the question is, whether they are present in sufficient numbers to eat up and destory the innumerable host of spores and bacilli injected, and whether the limited number of cells containing the bacilli is at all in proportion to the work. Surely it has never been maintained by Metschnikoff and his school that spores and bacilli are not directly absorbed and carried into circulation, nor that the number of cells containing the bacilli is at any time great, nor that the surplus of the spores and bacilli remain quietly lodged in the lymph sac till, many hours later, a sufficient number of leucocytes have been attracted to the seat of battle? For instance, the absorption of solid particles of dead matter introduced into the lymph sac by no means takes place exclusively through the leucocytes. When five minims of a fine suspension of vermilion in salt solution are injected into the dorsal lymph sac, some of the vermilion granules in salt solution are injected into the dorsal lymph sac, some of the vermilion granules, a very small part are taken up by leucocytes, by far the largest part is taken directly into the blood by means of the lymph stream.

It is reasonable to ask those that hold that anthrax bacilli and spores introduced into the dorsal lymph sac are destroyed by leucocytes and by these only, what they have to say of Sanarelli's extended observations* as to the germicidal action on anthrax bacilli of the cell free lymph of the frog's dorsal lymph sac, the lymph devoid of leucocytes, an action which is very constant outside and inside the sac of the frog.

Perhaps you have observed in the literature of this subject that has come to your notice that almost every experimenter speaks of the bacteria attracting the cells and not the cells the bacteria. As will be shown presently, there are many valid reasons for believing that the cells primarily do not migrate to an inflamed area because there are bacteria there, since there can be inflammation and even suppuration without bacteria, and here too the immigration of leucocytes is great and constant, and on the other hand, there are bacteria, as Gabritcheoski has shown in Pasteur's laboratory,† which have a marked negative chemotactic action, *i. e.*, repelling leucocytes. Fresh cultures of bacilli of chicken cholera, for example, have a negative chemotactic action on the leucocytes of the rabbit. Nevertheless, it is somewhat difficult to explain why if the cells attract the bacteria, thousands of cells should migrate to the spot where microörganisms are present, whereas if the bacteria attract the cells the emigration of leucocytes can be readily explained. To answer this question, it must be maintained first of all that in the first place, as Councilman has proven, bacteria are not at all essential to make up an inflammation, and from this it may be gathered that bacteria are not essential to the migration of leucocytes, as this occurs in every, even sterile inflammation.

In Welch's experiments of the organization of blood clots it was stated that one of the first changes that occur is the penetration into the clot of polynuclear leucocytes. The products of disintegration of the physiological elements of the clot seem to attract them, and although many more leucocytes enter the clot when it is infected, this, according to our view, does not occur because there are bacteria in it, but because the latter set up a greater degree of decomposition in the clot, and the increase in chemical products of this tissue disintegration attracts a larger number of leucocytes. But why do the leucocytes really seem to accumulate around and in an inflamed area. For three main reasons: 1. A physical one. 2. A chemo-pathological one. 3. A morphological one. The physical reason has been pointed out by Schlarewsky and after him Weigert and Cohnheim. It is briefly this: The rate of the blood-flow being much reduced, the leucocytes by their physical properties stick to the sides of the vessel, the vessel wall being morbidly altered, its tonus destroyed, they make their exit by means of their inherent active amœboid movements; or if we wish to credit Cohnheim, by a physical process of filtration or by both.

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*Centralblatt f. Bact. u. Parasit., ix., 14, 15, 16.

†Gabritscheoski : Annales de l'Institut Pasteur, June 25, 1890.

The second reason to be given for the accumulation of leucocytes in an inflamed area, the chemo-pathological one, has been derived from the experiments of Buchner.* It is briefly this: That wherever there is necrobiosis in the organism there too the leucocytes migrate. The products of tissue necrosis, whether bacteriological or not, attract them. Buchner has clearly demonstrated that it is not the bacteria themselves that attract leucocytes or repel them, but that it is the chemical constituents of these bacteria. He has extracted from the bodies of certain bacteria, by treatment with dilute solutions of potassium hydroxid, a substance which has powerful positive chemotaxis for leucocytes. Such products (this is important) he has obtained from the necrotic tissues themselves. He has found that the alkali albumins of the products of tissue necrosis exert a powerful positive chemotaxis for leucocytes. The third reason for the accumulation of leucocytes in inflamed areas I have called a morphological one—it is rather a morpho embryological one. All are agreed that whatever the later history of the blood cells, they arise in the embryonic mesoblast at the same time as the heart and the blood vessels themselves.

In inflammation we have primarily to deal with changes in the blood vessels and blood. To consider these wholly separately, or or without a perception of their unity, is a mistake that has practical as well as theoretical consequences. There can be no doubt that any crop of blood cells must bear morphological and histogenetic relations to the preceding one. Now when we remember that the leucocytes of the blood correspond to the original undifferentiated embryonic cells of the mesoblast, which alone have made up the entire embryro, and which are preserved as floating organisms with a latent capacity for further development, much light is thrown on their accumulation in inflamed areas or in diseased or necrotic tissues requiring organization.

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* Berliner klin. Wochenschrift, Nos. 10, 30 and 40, 1890. Also, more recently, in Centralblatt f. Bact. v. Parasit., Bd. x., Nos. 22 and 23.

This is what I wish to bring out as the third explanation of the migration of leucocytes. They are floating, undifferentiated embryonic cells, with a latent capacity for further development. It is justifiable to presume that they are destined to aid in the reconstruction of destroyed tissue and that this may be one of the explanations of their wandering to inflamed areas, and of the attraction the positive chemotaxis that necrotic tissue has for them.

As it is well known that the undifferentiated cells of the embryo are more or less amœboid organisms, hence it is perfectly natural that their descendents should, under suitable circumstances, exhibit the properties of phagocytes under suitable circumstances; but mark you, please, this is not a case of *post hoc ergo propter hoc*, when they take in microbes in case such are present in their surrounding. From what has been said it is evident that the taking in of bacteria by leucocytes is accidental, a secondary part played by them, it is not their true function. And it is a matter of debate whether or not the bacteria force their way into the leucocytes, because the latter offer a more favorable nidus for them, and because the surrounding tissue juices, the serum, are inimical to them.

Klein is correct in saying, in the light of Buchner's recent observations, that just as certain chemical substances of the bacteria attract or repel leucocytes, so also certain chemical substances present in the cells and tissues attract or repel bacteria.

It is not a well-established fact that the spleen is an organ which preëminently seems to attract microbes introduced into the subcutaneous tissue, the lungs, or into the blood. In the case of malaria, relapsing fever, typhoid fever, in anthrax, and tuberculosis, is it not the spleen which is the organ "par excellence" which seems to attract and offer the most suitable nidus for the microbes?

In the acute exanthemata it is the skin; in hydrophobia it is the central nervous system, and in certain forms of cancer it is the epithelial and endothelial structures. Surely it is is permissible to assume that there are present certain chemical substances in these different tissues which act in a positive chemotactic sense on these various microbes, and hence make these tissues the selected nidus for their existence and growth. In the numerous instances of psorospermosis under discussion at the present time it is chiefly the epithelial cells which are mentioned as the tissues attracting especially these microörganisms. In artificially induced tuberculosis, the tubercle bacilli are not present in the blood, but found in the cells of the spleen, of the lymph glands, and of the bone marrow the most attractive localities. And it seems also justifiable to assume--say, for instance, for the lymph cells of the tonsils, of Peyer's glands, and similar superficially situated lymphatic structures, that the tissue fluids, being inimical to the existence of bacteria that pass into the tissue from the surface, they (the bacteria) find in the cells some attraction, some chemical substance that suits them, and hence these cells, far from being the enemies of the bacteria, are, on the contrary, their places of refuge, for a time at any rate. This view of Klein's, as expressed in the London *Lancet*, No. x., vol. i., 1892, seems just as feasible as Metschnikoff's, that because these cells contain bacteria, therefore they are the chief and only bacteria destroyers. It is well established that in some acute and chronic infectious diseases the specific bacteria are lodged chiefly in the leucocytes or similar cells in which they grow and which they ultimately destroy. In Koch's mouse septicæmia, fatal in one to three days, the leucocytes of the blood are crowded with the specific bacteria, and by these the leucocytes become destroyed. In bovine tuberculosis, and in tuberculosis artificially induced in rabbits and guinea pigs, leucocytes and similar cells are the principal substances in which the bacilli settle, and in which they grow. In the tubercular form of leprosy the nodules are entirely made up of round cells in which the lepra bacilli grow, and which cells become gradually destroyed by the bacilli. In Koch's Egyptian ophthalmia the pus cells principally contain the bacilli, and by the growth and multiplication of the latter the cells become gradually destroyed. In gonorrhœa, the gonococci are principally contained within the leucocytes and by their multiplication gradually produce disintegration of the cells. In swine erysipelas the liver capillaries contain numbers of leucocytes in which the specific bacilli are numerously present and which thereby swell up and disintegrate. Do not all these facts prove that in these diseases it is the cells which attract the bacteria? It is these cells in which the bacteria grow and multiply, and it is these cells which ultimately succumb to the bacteria.

The explanation of immunity is not to be sought in hypothetical properties of leucocytes, but in properties of the blood plasma; for it has been shown that if an animal, susceptible to a particular disease, be first infected with the bacilli causing the disease, and then into such an animal the cell free serum or blood plasma of an animal refractory to that disease be injected, the development of the disease in the former animal is stopped or prevented. In other words, it has been proved beyond question that when the cell free blood plasma of an animal immune against a certain disease was injected into a nonimmune animal suffering from the same disease the dovelopment of the disease in the latter is stopped. These assertions are based on the well-known results of the numerous and carefully conducted experiments on anthrax published by Ogata and Tasuhara, and those of Behring and Kitasato on diphtheria and tetanus,* and also on the important researches of Tizzoni and Cattani† with regard to tetanus. These last named observers show that the serum of the blood of dogs made immune against tetanus possesses a powerful antitoxic action against tetanus; moreover, they have quite recently actually succeeded in curing tetanus in the human subject by injection of that tetanus antitoxin obtained from serum.

Finally, I should like to draw your attention to the recent work by Buchner and his pupils, as summarized by Buchner in the *Centralblatt f. Bact. u. Parasit*, vol. x., Nos. 22 and 23, from which it becomes very evident that the destruction of microorganisms in living tissues is by no means accomplished by the cells of the body, and by the cells only. The experiments of Buchner and his pupils point conclusively in the opposite direction. Buchner says the first and decisive inimical influence on the infective microbes in a refractory animal, and in the living tissues, is due to the chemical action of the tissue juices; this precedes the taking up of microbes by the leucocytes; this latter phenomenon is entirely dependent on the former, and without the former primary process phagocytosis is impossible.

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*Deutsche Med. Wochenschr., 1890, No. 49.

†Centralblatt f. Bact. u. Parasit., ix., No. 21, and x., Nos. 2 and 3.

In connection with the fact that inflammation can be caused in animals, without bacteria, by placing thin glass tubes containing an irritating substance in the subcutaneous tissue, allowing the wound to heal thoroughly under aseptic precautions and then later on crushing the tube by pressure from without, I was led to make a few experiments in the Biological Laboratory of the Johns Hopkins University by causing inflammation in a young dog by the injection with the hypodermic syringe of absolute alcohol, which is declared by all who have worked in this line as being a substance having a marked negative chemotaxis or repellant action on leucocytes. The skin of the dog must be shaven clear of hair, and washed with soap and hot water, absolute alcohol, and solutions of permanganate of potash and bichloride of mercury. Then the syringe, carefully sterilized, is filled with alcohol and introduced under the skin; after the injection is made the point at which the syringe entered is covered with iodoform collodion. I had no opportunity to see my dogs until eighteen hours after the injection, when a prominent lump had formed at the area of the injection, very red and painful to the dog; the rectal temperature was 40.5° C. A piece of the inflamed area was excised and sectioned in a freezing microtome, the sections afterward fixed with one per cent osmic acid in one per cent chromic acid, stained in picrocarmine, then gradually carried up to one hundred per cent alcohol and mounted in balsam. The number of leucocytes in such sections is very great; there are no bacteria in them nor are any to be seen anywhere in the sections.

This experiment was undertaken for my own satisfaction, to learn whether inflammations can be caused by substances with a negative chemotaxis, and whether the leucocytes are numerous in them. Indeed, after the experiment was done it occurred to me that it was quite unnecessary, as any substance capable of producing a trauma, a necrobiosis of tissue could *a priori* be presumed to cause inflammation.

CONCLUSIONS.—I have tried in this abstract to bring out the facts showing that Metschnikoff's theory of phagocytosis is insufficient to explain immunity, for the following reasons :

1. In Hess's experiments, on injection of anthrax bacilli in the lymph sac of the frog, a large quantity of bacilli and spores must necessarily be carried directly into the blood streams, and could not possibly be taken up by leucocytes, which are shown not to be present in sufficient numbers to destroy the bacilli and spores.

2. Sanarelli has proven a germicidal action on anthrax bacilli and spores to belong to the cell free lymph of the dorsal lymph sac inside and outside the sac.

3. Leucocytes do not accumulate or migrate to inflamed areas because they are attracted by bacteria, since sterile inflammations and inflammations produced aseptically by substances having a a negative chemotaxis abound in leucocytes.

4. Certain bacteria even exert a negative chemotaxis, *i. e.*, repelling leucocytes.

5. Mitigated cultures produce a greater immigration of leucocytes than do virulent cultures.

6. Leucocytes seem to migrate to and accumulate in areas of inflammation for three main reasons :

a. A physical reason, as pointed out by Weigert, Schlarewsky, and Cohnheim, which is to this effect—the rate of the circulation being much slowed, and arterial pressure raised, the leucocytes, by their physical properties, stick to the sides of the vessel, the walls of which, being pathologically altered, they gain exit by their own amœboid movements, or according to Cohnheim, by a physical process of filtration.

b. The second reason, a chemo-pathological one, is derived from the experiments of Buchner, showing that necrobiosis always attracts leucocytes; the products of tissue necrosis, whether bacteriological or not, attract them. Buchner has isolated from the bacteria and from the necrotic tissues chemical products that exert powerful positive chemotaxis.

c. The third reason, a morphological and embryological one, is founded on the histogenetic relations of the leucocytes to the undifferentiated cells of the mesoblast, which alone have made up the entire embryo. The leucocytes are floating embryonic cells with a latent capacity for further development; the positive chemotaxis that destroyed tissue has for them may be partly explained by their function to aid in tissue reconstruction.

7. In the light of recent observations it is correct to assume that just as certain chemical substances in the bacteria attract or repel leucocytes, so also certain chemical substances present in the cells attract and repel bacteria. This view is supported by many examples of certain cells and tissues being loaded with the specific bacteria, in various diseases.

8. This being the case, it is justifiable to assume that the tissue fluids, being inimical to the existence of bacteria, find in the cells some attraction, some chemical substance which suits them, hence the cells are not the enemies of the bacteria but their places of refuge. In many infectious diseases it has been shown that leucocytes and similar cells are the places where the bacteria grow, and that these cells are ultimately destroyed by them. The cells succumb to the bacteria, not the bacteria to the cells.

9. The explanation of immunity is to be sought in properties of the cell-free blood-plasma. The blood-plasma of animals immune against a certain disease, injected into a nonimmune animal suffering from the same disease, arrests the progress of this disease. The blood of dogs made immune against tetanus possesses a powertul antitoxic action against tetanus. Tetanus in human beings has been cured by injections of tetanus antitoxin.

10. Buchner holds that the first and decisive inimical influence on the infective microbes in a refractory animal and in living tissues is due to the chemical action of the tissue juices; this precedes the taking up of microbes by the leucocytes; this latter phenomenon is dependent on the former, and without the former primary process phagocytosis is impossible.—*Medical Record.*

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PAMPHLETS RECEIVED.

ELEVENTH ANNUAL REPORT OF THE ILLINOIS STATE BOARD OF DENTAL EXAMINERS. C. Stoddard Smith, Secretary. 1893.

BANQUET GIVEN BY THE AMERICAN MEMBERS OF THE WORLD'S COLUMBIAN DENTAL CONGRESS TO THEIR FRIENDS FROM ABROAD, AUGUST 18, 1893.—THE SPEECHES.

The banquet was given at the Chicago Beach Hotel, Friday evening, August 18th, and was attended by about 238 members. The menu card was very neat and artistic. On its top, in one corner, was written the year 1492, in the other 1893, below which were inscribed the following words: "Dinner Given by the American Members of the World's Columbian Dental Congress to Their Friends From Abroad, August 18, 1893." In the center of the menu card was a picture of Columbus, partially surrounded by the stars and stripes, with the old historic ship, the Santa Maria, that brought him across the stormy and perilous ocean safely, in the distance, and three sea gulls indicative of land.

The banquet was held in the commodious dining room of the above hotel. Precisely at 9 o'clock the members and invited guests filed into the room, keeping time with the music furnished by the Professor Bowron Orchestra.

Dr. J. A. SWASEY, of Chicago, acted as toastmaster.

At 11 P. M. the members lighted their cigars, and as the fragrant fumes began to ascend, Dr. Swasey rapped for order, and in a loud, far-reaching voice, said:

Gentlemen: The World's Columbian Dental Congress soon will live only in memory and history, as one of the greatest meetings ever held by the dental profession. (Hear, hear, and applause). The scientific papers, the practical exhibitions, the intelligent discussions of this meeting will be felt throughout this generation in every land where dentistry is known, and many things that have been said and done will pass into the curriculum of dental education and be taught to generations of people and dental students that are yet unborn. (Loud applause). To whom are we indebted for this grand meeting? Is not our worthy President for his efforts in conducting so successfully such a congress, and our hard-working Executive Committee, working diligently for three years, entitled to credit? (Applause). Not failing to mention the brilliant Chairman of the Executive Committee, the long and far-seeing Secretary of the same, and above all the Secretary-General. (Loud applause). I think it is due largely to the copious flow of the milk of human kindness that has flowed through the sewer of professional jealousy till it was purified; and I want to ask, gentlemen, if it is not due largely to the foreign members of this congress, who have so nobly responded both in person and by pen? And is it not right that we, as American dentists, should extend to them the right hand of fellowship and good wishes for their safe return to the homes of their birth and adoption? (Loud applause, and cries of bravo, bravo).

THE TOASTMASTER: It has been decided by the committee to make a new departure at this banquet, in that there will be no set toasts, but a sort of go-as-you-please, and any one called upon for a speech can talk on any subject he pleases barring one, that is dentistry. He can sing a song, tell a story, or look pleasant. (Laughter and applause). The time is so limited that I would request the audience to give the gentlemen who rise to address the meeting their undivided attention for two or three minutes. The first gentleman who will entertain us is our honorable President, Dr. L. D. Shepard, of Boston. (Applause).

Dr. SHEPARD arose amid an outburst of applause, and when quiet was restored, spoke as follows:

Mr. Toastmaster and Brother Members of the World's Columbian Dental Congress, or perhaps I should change the phraseology a little and say *Members of the World's Columbian Dental Congress*, for we have here to-night a meeting upon the same level, with the same rights, and the same broad platform which was advertised to the world as the basis of this congress, of simply dentists in legal practice and carrying on their practice according to ethical principles entirely regardless of race, nationality or sex. (Hear, hear, and applause).

I consider it a particularly fortunate circumstance to-night that all feelings of favoritism or prejudice have passed entirely away, and that we are meeting here around a common board with common feelings and with mutual respect. I am happy, furthermore, to say that I represent a city in this country which, in these times of business depression and discouragement to so many of the profession as well as of other classes of people, has shown such an interest in this congress that the entire membership of the profession in that city which we revere and love, is present and are members of this congress, and are to-night in this hall. (Loud applause). But, gentlemen, I know that you have come here for a different purpose than to hear any remarks from me. We have guests, we have representatives from twenty-four nations of the earth sitting around this table. Has there ever been a congress before which so truly can be called an International Congress of dentists? (A voice: "No"). I think not. Some of us will not live to see it, but many in this room will live to see the day when a diploma from the respectable educational institutions of our country will be like a passport from one's government, which will secure him equal rights in any country where he may decide to locate, to devote himself to the support of himself and family and to the good of humanity. (Loud applause). Gentlemen, many of you to-day will see the time come when there will be a brotherhood in science, a brotherhood in art and a brotherhood in the professions such as we dare not now try to realize. (Loud and prolonged applause and cries of bravo! bravo!).

The toastmaster introduced DR. ERIC RICHTER, of Berlin, Germany, who was received with great applause. Dr. Richter said: *Ladies and Gentlemen, Fellow Members of the Congress:* I am rather astonished to be called upon so suddenly to respond to the hearty words spoken by our worthy President, Dr. Shepard. In his remarks he has painted the highest type of international fellowship and the international diploma, and I hope that the pretty picture which he has drawn of international acknowledgment of diplomas will not be far distant; and, furthermore, I trust that this congress will be only the beginner of a long series of international congresses (loud applause), and that the fellowship and personal acquaintances made in this assembly will be renewed at the next congress, and kept up so that nothing but international friendship and brotherly love will govern the profession. (Applause).

DR. CHARLES GODON, of France, was called for, and addressed the members in his native tongue. He was heartily applauded at the close of his remarks.

THE TOASTMASTER: We will now listen to a few words from DR. GEORGE CUNNINGHAM, of Cambridge, England.

Dr. CUNNINGHAM was enthusiastically received. He said:

Mr. Toastmaster, Brother Members and Membresses of the Congress: A shadow approaching darkness is typical of England, and in order to do justice to our representation here, after consulting my colleagues, we have determined that a dark séance will be the most appropriate environment for my addressing you and in conformance with my country. While the darkness prevails for a time, we shall shadow forth some of the pleasant incidents of the past and present, and show you many familiar faces. The slides which I shall show you will recall the happy days which we have had in the past, as well as the present, in attending such a congress as this. There are men here who are ever ready to proclaim for independent dental congresses, such as we have had, and while I would like to be numbered among them, at the same time there are other congresses in which we can take an active part. I am an advocate of taking a part in all congresses, whether medical or dental. Whenever we have a chance, let us put dentistry forward and show to the world what we have done and can do. Among the congresses that have been held under the auspices of the World's Congress Auxiliary, it is my opinion that the congress we have just held will rank as high historically and scientifically as any of them. (Loud and prolonged applause).

The room was then darkened, and Dr. Cunningham showed lantern slides of Professor Miller, of Berlin, and his "studio." He also showed slides of Professor Barrett, with the genial Dr. Younger firmly implanted by his side and rubbing shoulders with Bacon and Briggs, representing the sister southern and western counties, branches of the British Dental Association, while Davis, of anæsthetic repute, could be seen in the foreground. Another slide showed Sylvester, of Berlin, with Daboll, of Paris, and Mitchell, of London. Several other slides of distinguished foreign and American dentists were shown, after which Dr. Cunningham graphically described the peregrinations and perambulations of the members through Berlin and elsewhere in quest of knowledge, etc.

One of the slides showed the Secretary-General of the Congress, Dr. Harlan, at home with his wife and two charming daughters. This picture elicited loud and prolonged applause.

Dr. Cunningham was warmly applauded for his very entertaining and exceedingly humorous lantern lecture. It was one that will long be remembered, and was a pleasing diversion for the members.

The toastmaster called on Dr. ALFRED BURNE, of Sydney, Australia, for a speech, but as he was not in the room Dr. J. L. SECHER, of Copenhagen, Denmark, was called for. He said:

Mr. Toastmaster, Ladies and Gentlemen: I must ask the indulgence of the members of the congress for my imperfect English, for I am aware that I incorrectly pronounce a great many of your words. We have listened to speeches from representatives of different countries, and as a representative from one of the smallest countries of the world, I wish to talk only for a few minutes. I have long desired to visit America to see its dentistry, because I consider it the best in the world. (Applause). It is my desire that America should always be the most progressive of countries on account of its dental wisdom. I beg pardon, Mr. Toastmaster, I should have said Denmark. (Laughter). I trust that American dentistry will continue along the same progressive path that it has in the past, and let Europe come along by the side of it. On behalf of one of the best dental societies I have the honor to represent, I thank you for the cordiality and hospitality that I have received at your hands. (Applause).

Dr. TESSEN, of Strassburg, Germany, was called upon and addressed the members of the congress in German. His remarks elicited great applause.

The next speaker was Dr. R. H. PORTUONDO, of Madrid, Spain, who said:

Mr. Toastmaster, and Members of the World's Columbian Dental Congress, Ladies and Gentlemen: Through the courteous invitation of our President, Dr. Shepard, I again address you. I find myself in the same embarrassed condition as when I addressed you at the opening session of the congress. It would be a pleasure to me to address you in your own language, but I fear I should not be able to demonstrate to you how much our hearts are full of gratitude for the very cordial reception to the representation of the Spanish dentists, and I only wish that if any of you ever come to our beautiful country we can entertain you in your own kind, hospitable and princely manner. At any rate, we shall endeavor to do so. I am here representing the Spanish government, the first official delegate to a dental congress, and the honor you have bestowed upon me will open an era in which my country will hereafter have a representative in every similar convention. (Applause). I should consider that I had accomplished a very high mission if, after the sessions of a congress held in Madrid, we could have such a banquet as this, with all the great authorities of our profession present, and by this means still more unite the good feelings of Spain and the great Republic of America. (Applause).

The next speaker introduced was Dr. ANTONIA MELA, of Genoa, Italy. Dr. Mela addressed the members in his native tongue, and was loudly applauded at the close of his remarks.

The toastmaster then presented Dr. JAMES CARACATSANIS, Athens, Greece, who said :

Mr. Toastmaster, Ladies and Gentlemen: I thank you for the kind welcome I have received. I desire to drink to the health of the Honorable President, the Honorable Committee, and my professional brethren of the Dental Congress. Long live America, long live the Dental Congress. Hurrah! Hurrah ! ! (Loud applause).

The toastmaster introduced Dr. BARRIE, of Paris, who made a speech in French, which was loudly applauded.

Dr. J. M. WHITNEY, of Honolulu, Sandwich Islands, was introduced, and said :

Mr. Toastmaster : I am not a speechmaker, but I wish to express my sincere thanks for the great hospitality which has been shown me. It has been a great pleasure to me to meet so many gentlemen that I have known so well through the dental journals, and I have felt that they were friends and brothers of mine. Personally I owe them a debt of gratitude, because I have had to gather most of my knowledge from gentlemen who have been so kind as to give us their best thoughts through the dental journals and dental societies. (Applause). Those of us who live far away from these centers of progress, have to receive a stimulus, which presses us on and upward by your works at home. I trust that the work has but just begun, and that in order to make our profession a scientific one—one which I have been so glad to hear emphasized in this country—we shall all press forward more and more and deserve the title of scientific men, and take a higher step among gentlemen of scientific attainments. (Applause).

Dr. EMIL SCHREIER, of Vienna, Austria, was introduced by the tostmaster and made a brief speech, which was well received.

THE TOASTMASTER: We will now listen to a few remarks from Dr. J. E. Grevers, of Amsterdam, Holland.

Dr. GREVERS was warmly received. He said:

Mr. Toastmaster, Ladies and Gentlemen: I highly appreciate the kindness, friendship and good will shown to me so far, and I can only say that I hope this same friendship and goodfellowship will continue for many years to come, and that we shall at no distant day meet again in a congress like this, or as a section of an International Medical Congress. I feel somewhat proud of our connection with medical congresses, because in 1879, such a congress was held at Amsterdam. A friend and myself petitioned the congress at Amsterdam to create a dental section, which was done.

I have taken great pride in attending this convention, and as one of the speakers remarked a few moments ago, I hope it will be followed by others, and that the goodfellowship that has characterized this meeting will continue uninterruptedly until we all meet again. (Loud applause).

DR. FLORESTAN AGUILAR, of Cadiz, Spain, was next introduced, and said:

Mr. Toastmaster, Ladies and Gentlemen: I rise to pay a tribute to the organizers of the congress; it is to them and their untiring labors that we owe the success of this meeting. (Applause). I would like on this occasion to be a second Shakespeare, to have the faculty of clothing my thoughts in appropriate language, but I realize my imperfections in addressing you in English. I am speaking for myself and my *confrères* who feel highly grateful to you as Americans for the kind reception that you have given us, and the hospitable manner in which you have received us. I think we are largely indebted to the organizers of the congress for the magnificent work they have done. I cannot suppress my emotions at this time, and am constrained to tell you that when I entered the hall of the congress and saw the coat-of-arms of Spain, and saw in the buttonholes of the members of the executive committee the colors of my flag, I was extremely proud of it. (Applause). Gentlemen, I consider myself half an American, as I have such a a love for the country. I came here when I was young. I love it as I do my own country. (Applause). I hope the day will soon come when we shall meet again. I hope we shall soon see some of you in Europe, so that we may be able to show you that we do not forget your kindness. I hope the time will come when there will be an international diploma, an international dental society—a time when there will be no frontiers to science. (Hear, hear, and applause). Gentlemen, I am proud to say that the Spanish members of the congress are numerous in this hall to-night. There are ten here from Spain. I say, hurrah! Hurrah for America! (Loud and prolonged applause).

DR. T. J. JONES, of Victoria, B. C., was introduced. He said:

Mr. Toastmaster, Ladies and Gentlemen: Your representative of the Dominion of Canada feels depressed. He feels like a regiment returning from battle, having lost their general. We expected to have had some of the bright lights with us to represent Canada both in person and on paper. I am a long way from home, and am on my return from Europe. We expected to have had Dr. Beers—one of the brightest lights of our profession—to represent us in this gathering. He has done more to raise the standard of dentistry in Canada than any other one member. (Applause). Although I am far away from home, I know I am among friends. On behalf of the small contingent that we have in British Columbia, I thank you for the kind manner in which you have received us. You will be surprised when I tell you that we have perhaps not more than one hundred thousand whites in the whole province, although our province is larger than the State of Illinois. Gentlemen, I am proud to be with you, and desire to express again my sincere thanks in behalf of the British Columbia Dental Association, as its representative here to-night, for the hospitality that has been shown to me by all the members of the profession, and more especially those of Chicago. (Loud applause).

THE TOASTMASTER: We have with us another gentleman from Canada, and I take pleasure in introducing Dr. J. M. BRINNACOMBE, of Bowmanville, Ontario.

Dr. Brinnacombe said:

Mr. Toastmaster and Gentlemen of the Congress: I consider it an honor to be with you to-night, and desire to thank you for the hospitality and kindness which I have received at your hands. It is needless to say that we have enjoyed the "feast of reason" that we have had. The opening remarks made by by our Toastmaster, Dr. Swasey, impressed me very much. We shall always remember the magnificent meeting we have had, and the kind hospitality we have received from our professional brethern of this country. Again, I thank you on behalf of the Province of Ontario. (Applause).

Dr. Mitchell, of England, was introduced. He spoke as follows:

Ladies and Gentlemen: I did not intend to make a speech to-night when our worthy representative, Dr. Bryan, is here. I can only say, in speaking of my *confrères* and those I have come in close communion with, that I most heartily thank you for the kind reception I have received at your hands. It has been a novel experience to me in looking at such a vast congress of the dental lights of the world, meeting and shaking hands with them. (Applause). It has been a pleasure to me to meet you during the week, and it will be deeply appreciated by those whom I have been called upon to represent. It is a treat that will go along with us down through life's vista. We are separated from you only by distance, not by feelings. (Applause). We shall all bear in remembrance the numerous friends we have shaken by the hand this week. Through the various dental journals of this country that reach us every month, we derive a great deal from the thoughts expressed in them, and in our modest little way we do the best we can to follow out the precepts there laid down in our practice. We have always looked upon Chicago as being the representative city of America. (Applause). I do not say this in the way of invidious distinction against other cities, but progress we find on every hand. There is so much of it that it really overwhelms a person who is not used to it. (Laughter and applause). I speak thus, in a general way, in regard to our specialty. It has remained for the dentists of Chicago with the support of their *confrères* to make one of the most successful and grandest meetings that dentistry has ever seen or known (hear, hear and applause); and going a little out of the range of thought in regard to my representation, I regret exceedingly that there are not more present from the little island I came from, to enjoy the literary and social feasts we have been indulging in during the past week. (Applause). I think the loss is theirs. I regret very much that they will have to take the doings of the great convention that has just closed practically second hand. Had they been here we should have enjoyed their company, and the few that have taken the trouble to come as individuals, hardly as representatives, I think will go away having a broader view of dentistry, a broader view of the fraternal feeling that exists among the dentists of this country and my own, and will do their best regardless of clime or nationality to make dentistry the broad specialty that it is now endeavoring to be. (Loud applause).

Mrs. Caracatsanis, of Athens, Greece, was introduced by the toastmaster, and made a brief, felicitous speech.

Dr. Clarke, of North Wales, was introduced, and said:

Mr. Toastmaster and Gentlemen: I regret to say that I am the only representative from North Wales at this congress. I thank the members for the cordial manner in which I have been received. I am favorably impressed with America and more particularly with the excellent work of its dentists. I hope some day that I shall have an opportunity to reciprocate the kindness and hospitality that you have shown me. (Applause).

Dr. Louis Roussy, of Geneva, Switzerland, was called upon and made a brief speech.

The next speaker introduced was Dr. J. S. Burnett, of Salto, Uruguay, who said:

Ladies and Gentlemen: I have for fourteen years been struggling all by myself to get at the top of the ladder in my profession, I am conceited enough to think that I have done so in my country. I have endeavored to educate the public mind as regards the necessity of taking hygienic care of their mouths, but felt that I was almost alone in that collossal undertaking out there; so just as I was going to give up the struggle and continue working in my old way, I received an invitation from your honorable committee, and behold, I immediately got new vigor and made up my mind to come to the land where dentistry was born, grew up, and was educated and has reached the highest step of any country of the world. (Applause).

I have come to be inspired with some of your zeal, with some of your high professional sentiments and with a little of your energy. I am happy to be able to say that I have not been disappointed. I have found the American dentists, at home, the most cordial and hospitable set of men I have ever met. The best wish that I can express for the people of the United States of America is, that their large body of able dentists may ever continue, as heretofore, working their brains and studying with all their might and main to give them relative happiness by making their mouths comfortable, so that they may enjoy the fruits of their land. (Loud applause).

Ladies and gentlemen and very much respected colleagues, let me tell you that my only ambition in life is to live and see dentistry in my much beloved country on the same professional footing as it is to-day almost all over this blessed country. (Applause).

Gentlemen of the executive committee and officers of this congress, I now beg leave to thank you in my name and that of my present and future clientèle, for your invitation which has enabled me to gather so much new light, new vigor, and new energy, which I assure you, will be put to profitable use for their benefit. (Loud applause).

Dr. EBEN M. FLAGG, of Paraguay, was then introduced. He said :

Mr. Toastmaster, Ladies and Gentlemen : I have been introduced to this congress as a foreigner, whereas I am a Connecticut Yankee, and I think whether a man is an American or a foreigner, he can at least appreciate your kindness and feel inspired in the presence of beautiful ladies and a generous supply of wine, and in this connection I am constrained to quote in German the words of the famous Martin Luther, who said : "*Wer nicht liebt Wein, Weib und Gesang, Bleibt ein Narr sein Leben lang.*" (Applause.) So much for German.

I had the pleasure of living in the city of Chicago for nearly three years, and I learned many things here that I will never forget, and among them the French language, and in view of our being gathered as an International Congress representing the good feeling that exists between different nations, I will try to repeat some French words that I learned in this city from a French professor.

Dr. Flagg then addressed the audience in French, and was loudly applauded.

In again speaking in English, he said : Approaching the subject of England, I hardly feel that I am capable of doing it full justice; but no matter what irritation or petty strife has passed between the two countries, there is a bond of union that can never be forgotten (loud applause), and, gentlemen, in this congress to-night, there is no one who has done more to represent the good feeling of his country, no one who has done more to assure us that there should exist a good feeling between us, than our English representative, Dr. Cunningham. (Loud applause, and cries of bravo! bravo!).

Gentlemen, as our time is short, I will not detain you longer, but will repeat in closing a few words I learned when very young. I repeat them with all reverence, and I believe it to be the heart-felt feeling of all Americans that in thinking and speaking of England we should never forget these words: "Honor thy father and thy mother, that thy days may be long in the land which the Lord thy God giveth thee." (Loud and prolonged applause).

Dr. G. C. DABOLL, of Paris, France, in being introduced, said:

Mr. Toastmaster: When I left home to make a visit to my native land, I did not think so much of coming to the congress. That was not my first thought, nor was it to visit the Exposition, but the one thought that gladdened my heart was that of meeting the many friends that I knew I should find here. (Applause). I assure you it has warmed the cockles of my heart more than I can express to be with you. I thank you most sincerely and heartily for the hospitality you have shown us, and that is all I can say. (Loud applause).

Dr. G. VARGES PAREDES, U. S. of Colombia, was introduced by the toastmaster and said:

Ladies and Gentlemen: I have had the honor of being invited, through Dr. Gilmer, to assist at this banquet, given to the members of the congress from foreign countries. Although I should not say anything on account of not being well acquainted with the English language, I am sure of your kindness in overlooking my pronunciation. I have received a great many favors and attentions from you, and the happy days I have passed in your company will always be remembered by me. I am going to leave in a short time, after I have seen your grand Exposition, for my far country, and I wish to carry with me a remembrance of you. I dare to ask every one of you in particular for a card with your name—cards which I will place in a handsome frame to adorn my parlor, with an inscription that will be a remembrance of the learned members of the Columbian Dental Congress. When I get back to my country, I shall be questioned about this dental congress, and I shall tell them what I have heard, what I have seen, and they will know that this great country can do many great things because of your own will.

Again, I thank you for all the kindness you have shown me during my visit in your city by the lake, and in closing allow me to say that I hope it will not be the last time we may meet. (Loud applause).

The toastmaster introduced Dr. H. BLACKBURN SMITH, of Hamilton, Bermuda, who said:

Mr. Toastmaster, Ladies and Gentlemen: I feel that I am altogether too young a member to make a speech, and I simply desire to say that since I have been with you I have experienced nothing but kindness and the utmost cordiality from you, and I shall carry away a pleasant remembrance of my visit. (Applause).

Dr. L. C. BRYAN, of Switzerland, was called for, but was not in the room. In his absence Dr. CHARLES RATHBUN, of London, England, said:

Ladies and Gentlemen: In the name of the American dentists of Europe, I wish briefly to say that Dr. Bryan has done much to cement the good feeling among American dentists and American graduates on the continent as the President of the American Dental Association of Europe. (Applause).

Brief speeches were also made by Drs. ANTONIO VERGEL DE DIOS, of Manilla, Phillipine Islands, HERMAN LINBECK, of St. Petersburg, Russia, and W. J. YOUNGER, of San Francisco.

At the close of Dr. Linbeck's remarks, the Secretary General, Dr. A. W. HARLAN, arose amid great applause, and said:

Gentlemen: I rise for the purpose of saying, that on account of the lateness of the hour, it is impossible to call on the representatives of other countries which we very much regret; but I take pleasure in proposing the health of the chairman of the evening, Dr. Swasey. (Hear, hear, applause, and cries of bravo! bravo!). Let us drink to his health.

The audience then arose and drank to the health of Dr. Swasey, which was accompanied by the song entitled, "For He's a Jolly Good Fellow," the singing being led by Dr. Cunningham.

THE TOASTMASTER: Invited guests, it has been an unalloyed pleasure to me to be with you this evening, and to have heard you express yourselves so frankly and with the utmost cordiality. This meeting will be remembered by the American dentists as long as they live. (Loud applause). I hope and express again the wish for your safe return. We are sorry that we have to depart so soon from so fine an entertainment as we have received from you. (Cries of bravo! bravo! and loud applause).

At the conclusion of Dr. Swasey's remarks, the audience arose and sang with great gusto "Auld Lang Syne," and immediately thereafter quietly dispersed.

PAN-AMERICAN MEDICAL CONGRESS, DENTAL SECTION.

CONDENSED REPORT BY H. B. N.

There was a very slim attendance upon the "Oral Section" of the Pan-American Congress at Washington, D. C. This was probably largely due to its being so near to the World's Columbian Dental Congress, and also to the fact, that a large number of the dental profession do not enter with zeal, upon sectional work of a medical congress, and fail to see or appreciate the cordially extended hand of fellowship and the full recognition of those holding only the title of D. D. S., as belonging to the medical profession.

A large number of those whose names appeared as officers, were not seen or heard from, but the smallness of attendance was largely atoned for by the earnest zeal of such men present as Drs. Taft, Fletcher, Talbot, Carr, S. B. Brown, J. H. Hatch, Thompson, of Virginia, Walton, Donnally, Finley and Noble.

Dr. M. H. Fletcher's (Chairman of the Section) address was directed to showing the professional relationship of dentistry and medicine. These were endorsed by Drs. Taft and Williams.

Dr. George Evans, of New York, read a paper entitled "Pulpless Teeth," discussed by Drs. Brown, Williams, Noble, Taft and Fletcher.

Dr. J. L. Williams, of Boston, read a paper: "Preparatory Knowledge for the Study of Medicine and Oristry." In the discussion by Drs. Carr, Noble, Thompson, Fletcher and Talbot, the necessity of a more rigid preliminary examination for students in our dental colleges was urged. The ease with which diplomas could be procured from some of the colleges was deprecated. The large number of so-called dental colleges in Chicago seemed incredible and the urgent need of legislation to correct this crying evil.

Dr. W. H. Potter, of Boston, read a paper entitled "Discovery of the Anæsthetic Power of Ether." The paper seemed to be a labored effort to give Dr. Morton credit as the discoverer of the anæsthetic properties of ether.

Dr. Noble, although a personal friend of Dr. Morton, dissented from giving Dr. Morton the credit as the discoverer, but would accord him credit in bringing ether into notice and use.

Dr. Williams, who was well acquainted with Dr. Morton, sustained the views of Dr. Noble and gave a history of the first employment of ether. He did not think Dr. Morton discovered the "Anæsthetic Power of Ether," but was quick to see its importance and sought by a patent to control its use.

A paper by Dr. Andrews was read, but not being present with the illustrations necessary for its understanding, it was not discussed.

Paper by E. A. Bogue, of New York, entitled "Principles Underlying Regulating Teeth," was read by Dr. Carr; discussed by Drs. Carr, Talbot, Fletcher, Brown, and R. Finley Hunt. Paper by C. E. Francis, of New York, "Hygiene of the Mouth," was read by Dr. Finley. As all present seemed to agree with Dr. Francis, it provoked no discussion. Paper by Dr. J. A. Daly, read but not discussed. Dr. E. S. Talbot, of Chicago, read a paper, "Development of the Vault," discussed by Dr. G. V. Paredes, of Columbia, South America, Drs. F. Aguilar, Cadiz, Spain, Fletcher, Taft and Noble, all endorsing and praising the scientific work of Dr. Talbot. Several other papers were before the section, but were not read for want of time.

The social receptions and entertainments were a marked feature of the congress. The reception at "The Arlington" being very elaborate and on a scale of bounteous hospitality seldom seen. "Tally Ho" rides, excursions, etc., were an enjoyable feature of the congress, with a winding up excursion to Philadelphia, New York, Boston, Saratoga, Cincinnati and Chicago.

MEMORANDA.

Dr. J. H. Martindale has returned from Europe.

Some of the visitors to the Dental Congress are still in Chicago.

Dr. C. Palmer was probably the oldest dentist present at the Congress; he began practice in 1839.

There were about thirty dentists at the Washington meeting, all good talkers from the reports at hand.

An interesting visitor to the Congress was M. Chas. Godon, the irrepressible author, teacher and reformer.

Dr. R. H. Kimball, lately of Shanghai, China, has returned to the land of his nativity and located in Chicago.

One of the most entertaining visitors to the Congress was Dr. E. M. Flagg, of Asuncion, Uruguay. Dr. Flagg formerly resided in Chicago before the great fire of 1871.

Dr. A. O. Hunt gave up his entire time to the Congress, from July 20 until the finish. He then stayed a week in Chicago to see the fair, reluctantly turning his face toward the setting sun.

Dr. John Rabe has a most interesting collection of curiosities gathered from the South Seas. Any dentist in Chicago desirous of seeing them will find Dr. Rabe at Dr. Haskell's post-graduate school.

The attendance in Chicago was so large that the section in Washington did not call out many dentists from even the surrounding country. The financial situation not only affected Washington, but Chicago as well.

Many of the visitors to the Congress stayed over in Chicago to take a look at the World's Fair. This most wonderful creation will soon disappear, but the recollection of it will live through sight and photographs for many years.

The President of the Congress gave a luncheon to the foreign representatives and officers of the Congress, Saturday, the 19th, at 1 P. M., in the Terminal Station restaurant, inside the World's Fair grounds. About ninety were present, all having had a good time.

Section 1. Anatomy, Histology and Physiology on the last afternoon, was largely attended by hypnotists, and those interested in occult matters. A most interesting discussion took place on Hypnotic Suggestion, based on the paper of the erudite Harvard professor, Thomas Fillebrown, D. M. D.

Now every one will go to work to help out the Rome Congress. The managers of the W. C. D. C. can afford to be generous and pull off their coats for a little whirl in Italy. The best thing that could have happened to the Rome Congress was to postpone it, and give a little time to bury a few of the secret enemies of the World's Columbian Dental Congress—now a pleasant memory—and a lasting benefit to humanity. *Viva la Roma!*

For the first time in the history of dentistry the daily dental journal was issued in Chicago. The first to appear was the *Dental Tribune* at 4 P. M., Saturday, August 12. About 5 P. M. *The Dental Cosmos* came out on Monday, August 14. THE DENTAL REVIEW come out promptly at 9 A. M. Tuesday, August 15, with a full report of the whole congress, prepared by its own staff of special reporters, as follows:

THE DENTAL REVIEW.

COLUMBIAN DAILY EDITION.

VOL. I. CHICAGO, AUGUST 15, 1893. No. 1

EDITORIAL STAFF:

A. W. HARLAN, M. D., D. D. S., EDITOR IN CHIEF.

C. N. JOHNSON, L. D. S., D. D. S. T. L. GILMER, M. D., D. D. S.
ASSOCIATE EDITORS.

WORLD'S COLUMBIAN DENTAL CONGRESS.

SPECIAL REPORT MADE EXCLUSIVELY FOR THE DENTAL REVIEW

BY

GEO J. DENNIS, M. D., D. D. S.
C. E. MEERHOFF, D. D. S.
A. E. MOREY, Ph. B., D. D. S.
B. J. CIGRAND, B. Sc., D. D. S.
C. S. BIGELOW, D. D. S.
E. R. CARPENTER, D. D. S.
T. A. BROADBENT, B. Sc., D. D. S.
L. N. SEYMOUR, D. D. S.
U. G. POYER, D. D. S.
C. J. MERRIMAN, D. D. S.
W. GIRLING, D. D. S.
E. MAWHINNEY, D. D. S.
ROBERT GOOD, D. D. S.
H. H. WILSON, D. D. S.

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Near the close of the Dental Congress the Treasurer announced that there were 1,105 registrations. A few have come in, delayed by the weather, by trains, and for other reasons, so that the total registration will probably reach 1,200. The transactions will go to those who pay the fee of ten dollars in advance.

"You are respectfully requested to report when you get home that the Chicago (sic) Congress was a dead failure and that in addition to the attendance being poor there were no fit accommodations for the visitors, nor did the members of the Congress receive any attention from the officers or others * * * "

This fragment was picked up on the street without name or date. It is presumed that some journal or society antagonistic to the Congress had an emissary on the ground and ——well, let it pass.

HELPED TO OPERATE ON CLEVELAND.

Dr. Ferdinand Hasbrouck, who ranks as an expert in the use and administration of anæsthetic gas, and who assisted in the operation performed on President Cleveland aboard the yacht Oneida, July last, said yesterday:

The operation performed on Mr. Cleveland was similar to cases we meet with every day in the course of our regular dental practice. It consisted of the extraction of two of the upper teeth and the removal of a slight portion of diseased tissue and bone back of the nose. Dr. J. D. Bryant and Dr. W. W. Keen, of Philadelphia, had charge of the operation. I administered the anæsthetic, extracted the teeth, and assisted Dr. Bryant and Dr. Keen. So far as I can see there is no reason for alarm. I saw nothing that would indicate a disease of a cancerous nature, and I don't believe another operation will have to be performed.—*Exchange.*

A called meeting of the Alumni of the Dental Department of the University of Michigan, was held at Hotel Brunswick, Chicago, Aug. 17, 1893, in the parlors of the Delta Sigma Delta Fraternity.

M. F. Finley, of Washington, D. C., class of '78, was elected President, and U. D. Billmeyer, of Chattanooga, Tenn., class of '80, was elected Secretary.

The following members registered:

V. H. Jackson, Marie Thompson Bacon, D. M. Cattell, L. N. Seymour, T. J. Mason, R. M. Paine, T. W. Beckwith, H. F. Harvey, E. D. Brower, M. A. Mason, Geo. H. Wilson, L. L. Barber, Chas. A. Eckert, L. P. Bethel, Wm. Cleland, Helen L. Searle, Vida A. Latham, May Weston, J. W. Wassell, E. Phillips, Geo. J. Dennis, Chas. F. Noyes, P. J. Kester, John A. Watling, U. D. Billmeyer, J. W. Youngman, C. E. Meerhoff, G. H. Copp, I. C. St. John, Wm. Donnally, W. H. Whistlar, J. Taft, L. L. Davis, M. F. Finley, W. Mitchell, May Cleo Smith, Thomas C. Leiter, Ida Gray.

Very interesting addresses were made by Drs. V. H. Jackson, J. A. Watling, J. Taft, M. F. Finley, Marie T. Bacon, P. J. Kester and others. After a general handshaking and exchange of greetings, the meeting adjourned to meet at Old Point Comfort next year, at the time of the meeting of the American Dental Association.

U. D. Billmeyer, Sec'y.

ECHOES FROM THE CONGRESS.

"A grand success."

"A glorious turnout."

"Foreigners in abundance."

"Scientifically a great event."

"And the girls are here too!"

"A rebuke to the stay-at-homes."

"What? More than a thousand."

"None but regular dentists need apply."

"Most orderly body of dentists I ever saw."

"Better than the 'steenth' part of a medical congress."

"The most ethical meeting of dentists I ever attended."

"You touch the button and the doorkeeper does the rest."

"Americans from foreign countries rallied 'round the flag."

"The quacks and other unrecognizable ducks were not in the swim."

"The most impressive closing scenes I ever beheld." "I have attended all the great congresses since 1876."

"The stabbers in the back of the Congress in foreign climes only partially succeeded in their diabolical attempts to prevent attendance."

OBITUARY.

We learn that Dr. W. C. Wardlaw, lately of Savannah, Georgia, died suddenly at Atlanta, Sunday evening, September 3rd. Dr. Wardlaw was fourth Assistant Secretary of the World's Columbian Dental Congress and was present in Chicago during the memorable meeting just closed. We extend to his bereaved family our sincere sympathy in their hour of trial.

F. H. BIRCHMEIER, D. D. S.

Dr. F. H. Birchmeier, of Chicago, died suddenly on Friday, September 8, at his home in Chicago. He was a member of the Dental Congress, and a young man of much promise; a graduate of the Chicago College of Dental Surgery and member the Delta Sigma Delta Fraternity.

THE

DENTAL REVIEW.

VOL. VII. CHICAGO, OCTOBER 15, 1893. No. 10

ADDRESS.*

BY JOSEPH W. WASSALL, M. D., D. D. S., PROFESSOR OF CLINICAL OPERATIVE DENTISTRY.

LADIES AND GENTLEMEN:—To inaugurate the work of a new college year in the history of this institution is our pleasant duty to-night. If in the discharge of the responsibilities put upon me by being the first member of the faculty to address you, I may give utterance to, or hint at suggestions which will have a helpful influence upon your student-life, I shall be indeed grateful, knowing that whatever affects this, your protoplasmic state, will last throughout your whole professional careers.

In the use of my privileges to-night, allow me first to congratulate each and every one of you that the difficult problem of choosing a vocation has been solved by your decision to become members of the profession of dentistry. Modern dentistry —a growth of the last half century—is one of the marvels of our time.

Though the Victorian era has witnessed its extrication from the barber shop, to-day the venerable and conservative medical profession claims and acknowledges dentistry as a part of itself. What a complete consummation of the hopes and ambitions of Harris, Hayden and their contemporaries—the founders of American dentistry.

In order that you may be prepared to guard the honor of your chosen profession and be ready to master its manifold difficulties, difficulties both to the brain and hand, it is necessary to realize in the beginning its position of usefulness and dignity in human affairs.

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*Delivered at the Opening of the American College of Dental Surgery, Chicago, October 17, 1893.

Let me entreat you to study well its history that you may know its standing and achievements in the realms of science and its noble purposes in the service of humanity.

Success will come to him and to him only who throws heart and soul into his life work. If you have a profound conviction that dentistry deserves the position it has earned, and that to follow it with intelligence and conscientiousness is a noble life you will reach distinction in it.

No thinking man can observe the recent great changes wrought by the operation of State dental laws, the higher standard of educational requirements for admission into colleges, the rapid increase of dental associations and the development of literature, without being able to prophesy for the ones now entering the profession, greater honor and usefulness than your faculty's preceptors ever dreamed of.

I know of no vocation which offers better opportunities for young men than dentistry. It is true it has made great advances within the memory of even the youngest present, but there is a vast unknown yet to be revealed and I see in the intelligent faces before me those who have it in their power to confer priceless benefits on humanity as well as to win lasting renown for themselves by lifting the veil from these obscurities. This you may accomplish by a systematic application of your time to thoughtful study and scientific research in the fields of dentistry. I know of nothing better as a stimulus to a life of good work in this direction than to read the biographies of some few of the great men who have left their impress on medicine and surgery. A study of these characters will teach you that it was a genius for *work*, rather than the possession of natural qualifications or talents, which enable them to accomplish so much. Sir Astley Cooper, one of the master surgeons of the world as well as an accomplished gentleman, made everything else incidental to his professional labors and study. He was so wrapped up in his work that he found time only for the important event of falling in love while waiting upon his sweetheart's father for gout, and the opportunity to be married occurred of an afternoon as a christening party were on their way to church. They joined in with the procession, and so little did it disturb his habits or labors that he lectured the same evening to his class.

He was accustomed to give to every candidate for graduation from the London College of Surgeons the following advice: You are about to enter upon a noble and difficult calling. Your success will depend upon the possession of three things: First, knowledge and the habit of systematic study; second, continual industry; and third, moral character.

Without the first no one can wish you to succeed. Without the second, you will never be able to succeed. Without the third, if you do succeed, your success can bring you no happiness. This advice is an admirable summary of all text books on the private and public conduct of medical men.

You ask why does dentistry offer so much to an aspiring young man entering it? I answer, the profession is young, its work is barely begun; we possess but the rudiments of knowledge, but weak means, with which to combat the tremendous influences before which the teeth of the human species seem to melt away. We need much light on the nature of diseased conditions, of their causes. We lack effective agents and methods to check the progress of an apparent tendency in the teeth to disappear. We want an efficient system of *preventive dentistry*.

Who have occupied this field in the past? and who occupy it to-day? We have our illustrious names, the men of learning and inventive genius who have made us what we are, all honor and reverence to their sacred memories, but allow me to say that compared with the so-called learned professions, the Christian ministry, law, medicine, statecraft, and letters, dentistry has numbered within its ranks but few, *very few*, men of large power.

The giants among men, men fitted by birth, natural endowment, education, and generations of mental training, have not heretofore sought dentistry as a field of labor. It is because of this limited competition, that I say there is larger opportunity for the ambitious young man even though he has not more than ordinary attainments.

As another incentive to the student entering the profession to-day it is well to recall that in the history of all the arts, sciences, and literature, the classic stage occurred in their youth, *i. e.* that their great principles and fundamental theories were formulated and given practical expression when public attention was first seriously directed toward them. No one will deny that dentistry is still at this stage of it growth. These facts merely suggest the possibilities which unfold themselves to those now beginning.

It is fitting, gentlemen, in welcoming you to the class-room, that a few hints be offered concerning your functions as students. My own experience as pupil and teacher may enable me to make some suggestions as to how you can obtain the greatest good from your college work. As dental colleges are now constituted, a large part of your instruction comes to you in the form of didactic lectures. To get the greatest benefit from these it has been the time-honored habit with students to "*take notes*," which plan I would advise you to adopt, except in the lectures on anatomy, when you should instead have the skeleton and cadaver before you. In taking notes of lectures I would caution you against attempting to make them too complete, lest your mind and hand grow weary. It will prove more profitable to note down briefly, only the chief points and new facts, which may be put to practical use, or which will assist you in recalling the whole argument. This will allow you to follow the speaker more intelligently, to think as he speaks, to weigh his words and to estimate the value of his teaching. It is an excellent habit—one I would heartily recommend you to adopt—to regularly read over the notes taken during the day, to formulate, digest and assimulate the mental pabulum which has been placed before you.

To aid in the better understanding and retention of the matter presented, it will be well to organize small private quiz classes among yourselves, each member to be quiz master in turn. In conjunction with your lecture, and in order to get a proper understanding of the subject in hand, text-books will be needed. Each individual should own one authority on every branch taught. The college catalogue contains a list, but each chair will recommend others when needed. Text-book study, or "boning," will be found imperatively necessary in acquiring anatomy, physiology, materia medica and chemistry, and will be helpful in all branches; but to thoroughly read up on all subjects as they are gone over by your professors will be a physical impossibility in a term so brief as ours. The text-books will be found useful in after practice. Moreover, if they have been faithfully studied in college they will be the more fondly cherished in the years to come. The most valued books in your library will be the ones you know the best. One of my old professors used to tell his classes that there was no better way to get brains than to buy them in books. But while giving to your books full credit for their educational influence, I would not have you under estimate the importance of *practical observation* and the value of *contact* with the things you are to know and to do. When Philip Syng Physick, who later in life so well earned the title of father of American surgery, went to London in company with his father to become a pupil of John Hunter, and the great man was asked what his new student should read, Hunter, with characteristic force and earnestness, said: "Sir, follow me; I will show you the books your son has to study," and, leading the way to the dissecting-room, he pointed to several bodies, adding: "These are the books which your son will learn under my direction; the others are fit for very little." Noble words and a sentiment too little heeded in all educational institutions.

To many of you the first few weeks of college work will be full of difficulties. It will be hard to form habits of study—to change from a life of physical to mental activity. However, compelled exertion will brighten the faculties, you will soon adapt yourselves to the new mode of life, and it will no doubt both surprise and flatter your instructors to see with what facility you learn their pet theories and hobbies.

I would especially urge the junior student to provide himself with the latest edition of Dunglison's Medical Dictionary. I can confidently assure him that it will prove of greater value than any other half-dozen books he could possess. He will constantly hear new words from the platform and encounter them in his reading. These should be jotted down, and their derivation, definition and spelling mastered. This being done they become a part of your capital stock of knowledge and will greatly facilitate your comprehension of lecturer and text book.

It should be a part of the course prescribed by yourselves to visit the different medical colleges and hospitals in the city, to hear some of their better men lecture and see them operate in the clinics. Study the anatomical and pathological specimens in college and private collections. Avail yourselves of library privileges, and last, but not least in importance, visit dentists in their offices, bearing in mind that the most convenient time for your host is not in the hard-working hours but late in the day.

I shall not be misunderstood if I say a few words regarding deportment. This will cover the entire question: Conduct yourself while in the college rooms precisely as though you were in your own home. Recreation is requisite to good health and effective study but may be best indulged in outside the college. Be a gentleman.

And now as to your conduct outside the college walls. In the eye of the law you will be a citizen of Chicago during your residence here, protected by its laws and likewise answerable to them.

He who wastes his time and energy places in jeopardy his chances at final examination. A clear eye, a keen perception, and a steady hand are required to distinguish between the streptococcus media and pyogenes alba. A final high standing in your classes will depend, other things being equal, on your physical ability to withstand the strain put upon you; guard your health, therefore, remembering that a penalty is attached to the transgression of physical as well as of moral law. Be not blind to your own imperfections. Let your sojourn here strengthen your character rather than weaken it, as is too often the case when young men are first subjected to the allurements of a great city.

In your anxiety to "cram" facts for use on examination day, remember that the *chief* end of your college training is to make of you a competent and reasoning practitioner of dentistry, and not to give you a legal right to the prefix of your name. Cultivate a thoughtful habit, let the matter placed before you be thoroughly masticated before it is passed on beyond the pillars of the intellectual fauces. There is one condition upon which your success will depend. I refer to the oft-quoted but little heeded precept, "Work for work's sake." You have a school wherein to work of which you may be justly proud.

The faculty would have you understand that with all the diligence it is possible for you to show, with all the assistance that faithful instructors can give, and that when from your overloaded mental condition we find it impossible to retain you longer, and you drop off your *Alma Mater* like ripe apples, not from weakness, but maturity, you will be even then but poorly qualified to merit the confidence of the public.

Your matriculation here to-day is the beginning of a course of study which is to continue all through your professional career.

"There is not," said Sir James Paget "in this world a nobler spectacle than that of a rational being devoting himself with patient, earnest perseverance, to the cultivation of his powers, that they may be employed in the discharge of duty. Knowing that a force within him is capable of unlimited expansion, and confessing in his inmost consciousness that its development and its exercise, are duties of strongest obligation, he pauses not to ask whether outward reward will crown his work or not ; much less, with scrupulous calculation, does he count the cost and gain. But because he knows that the powers and opportunities he has received were given him for use, he resolves that not one of them shall run waste or wild; for him to be indolent were to be unthankful. And so, in toil, yet not in weariness, he pursues his way, sowing seed, of which he reckons not whether he shall reap the fruit ; content, because he is in the path of duty; blessed, if only he may see or think that he ministers to the welfare of his fellowmen."

And now, gentlemen, my duty is almost completed. My ambition for you is that, belonging as you do to this rapidly rising American College of Dental Surgery, you will show yourselves workmen of whom as your endorsers we will not be ashamed; tried and trusty models in your intercourse with each other, jealous of your own and your *Alma Mater's* reputation, lending a helping hand when humanity demands, and in all things cultivating those higher, nobler qualities which fill us, as your teachers, with a just and honorable pride, the combined qualities which constitute not only a man, but a gentleman, and as such, in the name of my colleagues, I greet you and welcome you to these splendidly equipped halls of science.

BORACINE, (TETRABORATE OF SODA).*

BY E. DENIS, D. E. D. P., PARIS, FRANCE.

In one of the last numbers of *L'Odontologie*, there appeared a most interesting article, treating of antiseptic properties of boro-borax.

For some time past, I have used an identical process and a similar substance called boracine. It is a salt, perfectly purified, resulting from the combination of equal parts of borax and boric acid. This tetraborate of soda is neither caustic, toxic nor irritating, properties that often belong to antiseptics. Moreover, it has the advantage of being tasteless and odorless, and of dissolving in the proportion of sixteen per cent. I have tested the value of these products, and these are the observations which I have made. First, I have employed it for the disinfection of the dentinal tubuli, and I must say that the results were very satisfactory. However, the results I have obtained have not permitted me to substitute it for the different antiseptics already known. I have also applied it in the treatment of the mucous membrane, in which case it has given me astonishing results. Among the number of cases, which is too long to enumerate, there are two which are particularly interesting. The first one was upon a rheumatic subject, in the treatment of an abscess of the maxillary sinus produced in consequence of the too prolonged retention of a first large molar, which was diseased, having caused many consecutive accidents in connection with caries of the fourth degree. I extracted this tooth; and without entering into details, as is usually the case with an ordinary treatment of such an affection, I treated the abscess, excluding all other antiseptics, and employed only boracine. The second day, the suppuration had already begun to diminish, and stopped entirely the fifth day. That happened three months ago, and my patient has not suffered since. His gums, without being completely healed up, have, however, some time since regained the normal color. This rapid result has been obtained by putting one coffee-spoonful of pulverized boracine in the cavity of the sinus, that I took special pains to rinse before performing the operation, with boracine water of sixteen per cent; the adding of the powder to the solution has the object of facilitating the absorption of the remedy by the mucus, and in a most direct way; consequently the most efficacious one. The first day, I performed three dressings; the second, the third and the fourth days, two dressings; the fifth day, only one. Every trace of infection has disappeared since that time and I have often seen my patient since that time, enough to convince me entirely that he was thoroughly cured.

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*Read before the World's Columbian Dental Congress, Chicago, August, 1893.

The second case is that of a party who, in consequence of a bad extraction of the left canine tooth and of the superior incisor, had the anterior part of the maxilla broken in different places; his different teeth were all affected with caries of the fourth degree, which caused many chronic abscesses in the alveolar border, and fistula in the gums. A month after the extraction of these teeth, the patient felt some deep and continuous aching, and the abscess, instead of diminishing, was increasing every day. It was at that time that he came to consult me to relieve him of his pain. Having detected the presence of sequestra, I cauterized an opening of about one centimeter in width, at the position of the right incisor. In the middle of the principal mass, I was lucky enough to extract several deposits of some milimeters, and one, measuring exactly a centimeter and a half by one centimeter. As soon as I finished this operation, I rinsed it a number of times with boracine water of sixteen per cent; then I saturated the wound, so to speak, with some pulverized boracine, and placed a strip of saturated gauze at the orifice, in order to prevent the closing of the cavity too quickly; a consequence which would not have permitted the ulterior evacuation of the pus, and which also might have prevented my seeing if anything had escaped my investigation. The next day, I observed that the abscess had disappeared, and that there remained hardly any trace of suppuration. I performed the same dressing as the day before, without leaving the saturated strip. The next day everything was over. Eight days after, the gum had regained, if not entirely its primitive shape, at least its normal color, and no complication has ensued since. This demonstrates, in the first place, collection of considerable pus, which was stopped the fifth day after beginning the treatment; in the other case, it was stopped the day after.

I think therefore it would be a good thing to generalize the employment, particularly for the buccal mucous membrane which interests us the most. In order to sustain such results, I could not do better than quote the names of Doctors Galezowski, Landolt, Hubert, La Grange, etc., all of whom now employ boracine in all their clinics with great satisfaction. As a daily antiseptic, its use is plainly indicated against putrefaction of food particles which remain in the interstices of the teeth, and create an unfavorable element for the multiplication and the station of various microbes which lodge in the buccal cavity, waiting a favorable opportunity to invade the different organs, and produce some injuries. Altogether, I have tried to draw your attention to the employment and the virtues of this new antiseptic, that we salute as having made its entrance into the medical domain.

Believing in the results that it is undoubtedly called to render to our art, owing to its important qualities, it only remains to speak of the properties of this double salt as applied to the enamel of the tooth, and this will be the subject of a new study.

ON THE TREATMENT OF DENTAL CARIES IN THE SECOND, THIRD AND FOURTH DEGREES.*

BY DR. J. CARACATSANIS, ATHENS, GREECE.

After experience in the treatment laid down for the different degrees of dental caries, I have found that the best means to insure a cure of the tooth treated, is to make use of temporary fillings. For the last four years I have proceeded in the following manner to my entire satisfaction :

Second degree. Cavity is cleansed, cauterized with absolute alcohol, and immediately filled. If the dentine is very sensitive I coat the cavity (after well washing and drying), with a liquid preparation of gutta-percha dissolved in chloroform or oil of cajeput. I then at once fill the cavity with simple gutta-percha, which I leave in place for eight days. If the sensitiveness has disappeared at the end of that time I put in the permanent filling. If the contrary is the case I remove the gutta-percha and repeat the operation, which procedure may be repeated until the fourth time for cases with extreme sensibility.

Third degree. Remove the carious margin, take away the remains of food and softened dentine, carefully wash the cavity with a warm antiseptic solution, and employ the following two preparations : At first oil of cloves, 3 grams; oil of peppermint, 2 grams; chloroform, 5 grams; acid phenique, 1 gram; collodion, 2 grams; cocaine, 1 gram. Second preparation, of metallic cobalt, 5 parts; arsenious acid, 1 part. Saturate a cotton tampon with the first preparation, and then with the second, place at the orifice of the pulp without pressure, cover with a dressing of cotton in order to protect the neighboring parts and those cauterized. These dressings will have to be changed several times before the nerve is completely destroyed. Their action is slow but painless. Then carefully wash the canals. If these are very small I don't try to open them, a useless attempt, since it is never possible to do so as far as the apex, and, moreover, there is risk of perforating the root. I rest satisfied after having assured myself that the tooth has had its sensibility removed under pressure of the bandages. After carefully washing and drying the cavity I introduce by means of an insufflator some powdered boracic acid. At the end of eight days, if everything goes well, I remove the temporary filling and I fill the opening of the canals as far as possible with liquid gutta-percha and also the nerve canals. If the canals are large the liquid may be introduced either by the aid of a tampon or by means of a little syringe. The gutta-percha is covered and also left in place for eight days. If during this time inflammation occurs I remove the temporary fillings and I recommence treatment until the cure is complete. I never fill a tooth of the third degree even if the canals, are widely open before introducing, after the destruction of the pulp, dressings consisting of aromatic oils. I treated in a pastry-cook, aged 45, a large upper molar with closed canals for one year. On each attempt at temporary filling a succession of attacks of periostitis arose and inflammations with alveolar fistules. Finally the tooth was cured permanently, filled, and renders the greatest service in mastication. This man happens to be my neighbor, hence I am perfectly informed as to the results of my treatment. You will deny that everybody has the patience to follow a treatment sufficiently prolonged and the example which I have cited is an exception; I have also treated a number of teeth in the same condition, but which were cured much more quickly. I always have these persons return for a long time after to assure myself of the result.

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*Read before the World's Columbian Dental Congress, Chicago, August, 1893.

For teeth of the fourth degree, whether with alveolar abscess or not, I employ all the disinfectants and antiseptics. I never give up all hope of filling until a number of sittings for the practice of complete antisepsis. On first filling, in place of boracic acid I introduce iodoform by means of an insufflator. Temporary fillings are especially valuable in this degree.

Conclusion. According to my experience and statistics, the following class of cases should never be filled permanently: First, in a tooth of the second degree, the dentine of which is too sensitive, the filling with the chloroform base is the best therapeutic. Second, the best possibility is in retaining the pulp in the teeth of the third degree and the necessity of putting the teeth to the test of a temporary filling. A tooth of the fourth degree cannot be dis-d and filled at one sitting, and a temporary filling is above ispensable for this degree.

Concerning Various Methods Advocated for Obviating the Necessity of Extracting Devitalized Tooth Pulps.*

By W. D. Miller, Ph. D., M. D., D. D. S., Berlin, Germany.

It is a fact universally recognized and recently repeatedly emphasized that the difficulty attending the extraction of devitalized or necrotic tooth pulps forms a serious hindrance in the way of conservative dentistry. The practice now in vogue among good practitioners, of thoroughly removing the pulp and filling the root canal to the apex, is, with very few exceptions, easily carried out in connection with the incisors and cuspids and gives such sure results that there is no probability that a better method will ever be found. But when we extend this treatment to the bicuspids and molars the labor and expense entailed are frequently so great as to put it beyond the reach of the majority of the human race, while even those who are able and willing to pay any sum which the operator may feel justified in demanding, are by no means exempt from chronic inflammation and abscesses on the roots of bicuspids and molars. It would consequently be a great boon if some means or method could be devised which would render the tiring, expensive and sometimes impossible task of removing the pulp and filling the root canals of molars unnecessary.

While every dentist has now and then knowingly left remains of the pulp in narrow and tortuous canals, or in canals obstructed by calcific matter, and while a great many dentists in European countries have contented themselves with simply devitalizing the pulp and without further ado filling over it with amalgam and leaving the rest to nature—the first systematic attempt to do away entirely with the necessity of extracting the root portions of the pulp appears to have been made by Witzel, who, (*Deut. Monatsschr. für Zahnheilk.* 1874, p. 434), presented, the view that an application of arsenious acid carefully made to the inflamed pulp devitalized only the diseased tissue and that by amputating the coronal portion of the pulp twenty-four hours after the application, the ends of the root stumps might be treated as healthy, freshly exposed pulps.

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*Read before the World's Columbian Dental Congress, Chicago, August, 1893.

He accordingly capped the stumps with a paste consisting of carbolic acid and oxide of zinc and at once completed the operation with cement or amalgam.

Witzel supposed that the stumps healed up and speaks of a consecutive calcification, formation of dentine, etc. He treated 183 cases in this manner without a single failure.

In 1886 (Compendium der Pathologischen Anatomie der Pulpakrankheiten des Zahnes) Witzel had changed his views considerably and his methods slightly. We find that the stumps of the pulps, instead of "healing up," "shrink together in the most cases to antiseptic threads" under the action of the cement paste.

We also find sublimate playing an important part in the antiseptic treatment. Up to 1886 in many thousands of cases treated in the manner explained, Witzel had three per cent of failures; notwithstanding this favorable result, his method does not appear to have been very generally adopted and for years we have heard comparatively little of it.

In 1888, Baume (*Deut. Monatsschr für Zahnheilk.*) presented a method of treating devitalized pulps by which he believed that he had solved the problem with which we are to-day still battling.

In one sense Baume made an advance upon Witzel's views, and in another sense he took a step backward. He recognized the fact that "it is useless to attempt to retain vitality in the pulp after the application of arsenic," and consequently directed his efforts not to saving the stumps of the amputated pulp, but to "pickling" them, *i. e.*, to impregnating them with some substance which would prevent their subsequent decomposition.

For this purpose he recommended alum and borax, but soon discarded the former on account of its irritating effect upon the pericementum.

After amputating the coronal portion of the pulp, a crystal of borax was placed upon the stump ; over this a pledget of tin and the cavity immediately filled. It was in the choice of borax that Baume's method, in my opinion, must be considered as a backward step compared to Witzel's, since we could hardly expect as permament results with a weak antiseptic, like borax, as with the more powerful ones employed by Witzel.

Nevertheless Baume reported two hundred cases treated without a single failure; also other operators gave equally glowing accounts of their success. These brilliant results were apparently of short duration, since in 1891, Guttmann* reports ninety-four cases, with seventy failures.

The failures consisted in the subsequent appearance of acute pericementitis with its ordinary sequels. "Baume's method" seems, on the whole, to have given less satisfaction than Witzel's, and I think we must have expected this result from our knowledge of the substances used by each.

A modification of the above methods employed by Herbst, has been exciting considerable attention in America for some months past. Herbst's method as described by himself (*Deut. Monatsschr. für Zahnheilk.* August, 1892), consists in devitalizing the pulp with cobalt, boring out the pulp chamber with a sharp, round burr, rinsing out the cavity with warm water, and immediately sealing it "hermetically" with tin, rotated in with a large instrument.

Such particularly good results have been claimed for this operation that it appears desirable to consider in what respect it differs from the methods presented above. The following points present themselves for consideration:

1. The substance recommended for devitalizing the pulp, under the name of cobalt, is an arsenical ore, partially oxidized by contact with the air and therefore containing arsenious acid (Gorup-Besanez). We have at present no reason, theoretical or practical, for supposing that cobalt acts any differently upon the pulp from the purer form of arsenic generally in use. In fact it is the universal experience of the many who have made use of this material for devitalizing pulps, that it does its work about as effectively, although more slowly than arsenious acid, though Dr. Weil, of Munich, writes me that he has discarded cobalt on account of the uncertainty of its action. Consequently when Bœdecker and Heitzmann claim for cobalt what Witzel formerly claimed for arsenious acid, viz., that the root pulps retain their life after the application, we are justified in awaiting further evidence.

2. The suggestion hardly accords with general experience that a cavity can be sealed more hermetically by rotating in tin than by the usual methods of applying cement and covering it with

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*Verhandlungen der Deutschen Odontologischen Gesellschaft, Band II., Heft 4.

amalgam or gold; and in cavities difficult of access, the chances are that cement will serve the purpose better than tin.

3. The absence of antiseptic precautions in the Herbst method as practiced by himself is then the one thing which distinguishes it from the methods of Witzel and Baume. Bœdecker has introduced certain changes, such as washing out the cavity with 1.1000 solution of bichloride of mercury, but in Herbst's account of his operations no mention whatever is made of antiseptics. The instruments used are not said to be sterilized and large numbers of bacteria may be introduced into the cavity on the tin foil.

The facts gained by experience justify us in looking upon this manner of treating teeth with considerable incredulity. We are all perfectly well aware of the fact that the so-called hermetically sealing a cavity is no guarantee against a future decomposition of the pulp. Pulps which have died under old, perfectly air and water-tight cement or gold fillings, pulps which have been devitalized by a blow or by rapid regulating, may cause no trouble for weeks, months or even years, but in the majority of cases, sometimes very soon, sometimes not till after years, a discolored tooth, an acute inflammation, an abscess or a fistula will tell the history of the case.

The method of devitalizing the pulp and immediately filling over it with amalgam, in particular copper amalgam, has been so extensively practiced that we are not in doubt as to the result of such proceeding. The great majority of teeth so treated may give no trouble for a long time. At the end of five years, however, we may expect to find fifty per cent of them affected with alveolar abscess and the treatment is justly universally condemned at present. Experience has also taught us that when we have left but small portions of the pulp in narrow root canals and hermetically filled the cavity, we may reasonably anticipate trouble sooner or later.

Perhaps the majority of dentists have also made more or less extensive use of the method recommended by Bœdecker, when they have left a portion or the whole of the pulp in the buccal roots of upper, or mesial root of lower molars, and filled directly over them after thoroughly bathing them with carbolic acid or some other antiseptic. It remains to be seen whether we shall obtain better results when we employ the method on principle, than we did when we employed it as a matter of necessity.

It is not, however, the object of this paper to discuss the methods of either Herbst or Bœdecker. They do not inspire me personally with great confidence, but I should not wish to dissuade any one who may feel so inclined to make trial of them, though it seems to me that we have nearly all been trying them, *nolens volens* for many years.

I have for a long time labored under the impression that the solution of the problem was to be sought for in the direction first pointed out by Witzel in 1876, with the exception that our efforts should be directed not to retaining the vitality of the root stumps, but to preventing their subsequent decomposition by impregnating them with a suitable antiseptic.

I am convinced that the success of the impregnation method depends to a very great extent upon the character of the antiseptic employed and upon its chemical action upon the pulp apart from its antiseptic action.

The qualities desirable in a substance which is to be employed for the purpose in question appear to me to be the following:

1. It must be a strong antiseptic.

2. It must be sufficiently soluble and diffusible to guarantee the impregnation of the whole pulp.

3. It must not be so diffusible that it will be completely taken up by the surrounding tissue and finally disappear altogether, as is the case with applications of carbolic acid. It is my impression that there is greater danger in too great solubility than in insolubility.

4. A coagulating action upon the tissue of the pulp appears to me to be desirable, though it may not be absolutely essential. A pulp which is coagulated into a hard, insoluble body is less likely to furnish nourishment for bacteria, and less likely to offer irritation to the periapical tissue than one in a soft or semiliquid condition. I am inclined to think that one cause of the failure of Baume's borax treatment is the fact that the pulp becomes converted into a liquid or semiliquid soapy mass with a strong alkaline smell and reaction, which I hardly think can be indifferent to the tissue about the apical foramen.

5. It is desirable that the substance employed have no irritat-

ing action upon the pericementum either at the time of application or subsequently.

6. It should not discolor the tooth, although as the treatment concerns chiefly molars, a slight discoloration need not be considered as a very serious matter.

7. Solid substances are better adapted to the purpose than liquids.

We shall see that it is about as difficult to find a substance which fulfills all the above-mentioned conditions as it is to find one that fulfills all the requisits of a perfect filling material.

My investigations relating to this subject were begun in 1888, and the results of over 500 experiments reported in the *Dental Cosmos* for August, 1890.

Full details of the methods employed will be found in the article referred to. I may here state in brief that carious teeth freshly extracted, whose pulps were not already putrid, were opened with a large burr and the coronal portion of the pulp removed. The antiseptic to be tested was applied to the stumps, covered with a layer of tin foil (in practice gold foil is preferable), and the cavity filled with cement. The teeth were then planted in agar-agar and put into the incubator. After a given time, sometimes days, sometimes weeks, the teeth were removed, split open and the pulp taken out and placed upon plates of agar-agar already infected, which were then placed in the incubator to await development.

In all cases where the pulps had taken up the antiseptic in appreciable quantity, it would be indicated by a corresponding lack of the development of bacteria in their neighborhood. Experiments were also made on calves' pulps in the tooth as well as in glass tubes, on dogs' teeth, etc.

Those who care to examine the methods employed more fully will please consult the article referred to above.

According to the results obtained, I have divided dental antiseptics into three groups:

1. Those which possess in a high degree the power of imparting antiseptic qualities to root pulps, such as cyanide of mercury, bichloride of mercury, diaphtherin, sulphate of copper, salicylate of mercury, oil of cinnamon, ortho-kresol, carbolic acid, trichlorphenol, chloride of zinc. The last four are, however, decidedly inferior to the others; they penetrate the pulp very rapidly, chloride

of zinc surprisingly so, but they are lacking in the necessary powerful antiseptic qualities and are furthermore so diffusible that they, in the course of a few weeks, disappear altogether from the pulp.

2. Those of doubtful value. Thymol, salicylic acid, eugenol, campho-phenique, hydro-naphthol, L and B naphthol, acetico-tartrate of aluminum and some essential oils, resorcin, thallin, sulpho-carbolate of zinc, oil of birch, iodide of sodium, nitrate of sodium, etc.

3. Those nearly or quite worthless: Iodoform, basic aniline coloring matters, borax, boracic acid, dermatol, europhene, chloride of lime, peroxide of hydrogen, sozoiodol salts, iodol, tincture of iodine, spirits of camphor, naphthaline, etc., etc.

The grouping of these substances may be surprising to some, in particular the designation of the peroxide of hydrogen as being worthless for the purpose under consideration. But it must be borne in mind that the peroxide of hydrogen in a root canal, loses its antiseptic action in a very short time and while it may make the portion of the pulp with which it comes in contact, aseptic, it does not make it antiseptic, and besides its action is confined to the surface.

The attempt to apply these results to practice was first made with the bichloride of mercury, which has been used since 1890, in some 400 or 500 cases.

It was first employed in the form of small tablets having the composition:

1. Sublimate........................... 0.01 grams.
Boracic acid......................... 0.02 "

Or,

Sublimate........................... 0.01 grams.
Common salt......................... 0.02 "

The pulp having been completely devitalized, the pulp chamber was thoroughly opened and cleansed, and a tablet applied and slightly crushed with an amalgam plugger, moistened with water and covered with a layer of tin foil (I now use gold foil), and the amalgam or cement filling immediately inserted.

In about 30 per cent of the cases severe pain occurred on the day following the application, sometimes accompanied by intense soreness and swelling, which, however, subsides completely in a day or two, and in no case resulted in suppuration. I can attribute this effect only to the action of the sublimate upon the pericementum. Carbolic acid too freely used in the treatment of root canals *sometimes* brings about a similar condition.

On account of this disagreeable symptom these tablets were abandoned, and the following substituted :

2.	Sublimate	0.0075	grams.
	Thymol	0.0075	"

These are applied in the same manner. The thymol being chiefly designed to prevent the sublimate being so rapidly absorbed, besides giving a greater permanency to the application by reducing its solubility. Very seldom so far has pain followed the use of these tablets, while experiments out of the mouth show that they still possess sufficient penetrating power.

Another combination employed is :

3.	Sublimate	0.005	grams.
	Thymol	0.005	"
	Tannin	0.005	"

This combination is somewhat empirical, though the design of the tannin will be apparent to every one. The combination does not penetrate as rapidly as No. 2, and discolors the tooth more.

Cyanide of mercury has also been employed in combination with thymol in the following form :

4.	Cyanide of mercury	0.0075	grams.
	Thymol	0.0075	"

Also the salicylate of mercury in the same form. This, I think, is deserving of a trial. Its sparing solubility justifies the belief that its action will be more permanent than that of sublimate. The salicylate is at present used in the treatment of syphilis ; large doses being injected once a week, and serving as a depot from which it is slowly and gradually taken up by the system. The sulphate of copper may be used in pure form, but it naturally causes serious discoloration of the tooth at the neck. It is also, I fear, too soluble to give permanent results in pure form.

More recently I have directed my experiments toward the discovery of some substance which possesses the desired qualities without discoloring the tooth. Thus far I have obtained the best results from diaphtherin (oxychinaseptol), an antiseptic recently introduced by Emmerich.* It may be applied in pure form.

Among liquid antiseptics the oil of cinnamon takes the first place, and I have much faith in its power to conserve the dead pulp. Like all the liquids, however, it is difficult to apply and has besides the disagreeable quality of discoloring the tooth yellowish-brown.

The combination which I have chiefly employed is that of sublimate and thymol. (I have not had opportunity to sufficiently test the others in practice, though I am now using by way of experiment the salicylate, and to some extent the cyanide of mercury.) It has been employed at the Dental Institute of the University of Berlin, in over two hundred cases. Of these only one failure has come to my knowledge, that of a right lower molar in which secondary decay had appeared around the filling two years after the treatment, exposing the application. The tooth was sensitive to percussion, and caused pain in masticating. I place no reliance, however, upon these data, because it is impossible to keep track of cases in a clinic, and some of the teeth may well have been extracted without my knowledge.

A colleague of mine, who treated ninety cases between '89 and '93, was obliged to extract two teeth after fifteen and eighteen months respectively. One of these teeth he kindly sent me for examination, which revealed a gangrenous pulp, as well as the fact that the pulp chamber had not been opened up at all (the case being difficult of access), so that this case should be deducted from the failures. Traces of the tablet found in the cavity of decay still showed antiseptic properties.

Another colleague treated thirty cases, with one failure ; a third, over one hundred cases, with no ill effects except discoloration. I, myself, have treated but six cases in my private practice, all of which are in perfect order at present. I attach as little importance to these statistics, however, as I do to statistics of this nature in general. Some of the most worthless methods ever introduced to the profession have been ushered in with statistics showing 100 per cent of success. Not that the authors of them were insincere, but the statistics themselves deceptive. Time is the only test for methods like those under consideration, and we can scarcely expect to arrive at a definite conclusion in less than five or ten years. Nor should we be hasty in the application of methods of this nature.

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*Münchener Med. Wochenschrift, No. 19, 1892.

One or two cases every month, at least for the first year or two, is all that a careful dentist ought to risk in private practice. Cases should be chosen which are very difficult to treat, and which are otherwise frequently treated by the forceps, such as distal cavities of second or third molars, buccal cavities of third molars, etc. It is not possible at present to form a reliable estimate as to the value of this method of treating teeth ; it may also be that much better materials will be found for the purpose than those suggested above. There are, at least, reasons for believing that by a careful application of this method, many teeth may be saved which otherwise would be sacrificed to the forceps, or, what is much worse, be allowed to crumble away.

THE TREATMENT OF INFECTED ROOT CANALS WITH KALIUM AND NATRIUM.*

BY DR. EMIL SCHREIER, VIENNA, AUSTRIA.

I have taken the liberty to request a place on the program of this distinguished body for the reason that I entertain the hope that the subject of my paper is of such importance for daily practice that it cannot fail to arouse the interest of a large proportion of those present. It is my purpose to lay before you a procedure for the antiseptic treatment of infected root canals, which from its great simplicity and ease of application, as well as on account of the many excellent results which have been obtained therewith, deserves consideration from this distinguished assembly. I refer to the method of treatment introduced by me with kalium and natrium. (Potassium and sodium.)

For the sake of brevity, I shall limit myself to developing the principles which underlie the method. Should I succeed in arousing the interest of the audience, discussion will undoubtedly take place, when I shall have the opportunity to express myself more at length upon this subject which I have thoroughly elaborated. When a tooth with gangrenous or necrotic pulp comes under treatment, the dentist is confronted with the task of removing, as far as possible, a gelatinous, slightly consistent mass from a capillary tube, and this having been accomplished, to introduce into the same canal an antiseptic for the purpose of disinfection. You are all aware how much time, patience and skill are necessary for this operation. The average dentist has enough trouble in many cases in simply probing the canal with a delicate needle, not to speak of cleansing and much less filling the same; he is accordingly compelled to leave out of consideration any thought of saving the tooth. Such cleansing, however, is unnecessary, if it be possible to convert the septic contents of the canal into an aseptic condition, and the operation is much simplified if it be possible to effect the transformation by the simple introduction of a nerve-needle.

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*Read before the World's Columbian Dental Congress, Chicago. August, 1893.

My method seeks to fill the first indication by a chemical decomposition of the putrescent contents in which the root-canal serves as a test tube; the second indication is fulfilled, in the development of a substance which is readily taken up by a nerve needle, and sufficiently adhesive for introduction into the canal. This substance which you here see consists of kalium and natrium in a metallic state. I pierce its paraffin stopper with a nerve needle chosen at random. You observe a delicate deposit resembling quicksilver on the needle. I now dip the needle in a glass of water; the needle describes a fiery track therein. In the root canal in question there exists a putrescent mass. This consists of water and the decomposition product of albumen, the latter consisting especially of fats and fatty acids.

These substances have been forced by the influences of bacteria and serve as a culture-medium for the various species contained therein. If I now introduce my preparation into the canal with the needle, decomposition of the watery contents will occur with development of a considerable amount of heat. Potassium and sodium hydroxyds are formed which in combination with the fat of the pulp form soap. The characteristic gangrenous odor is accordingly changed into a well-marked soapy smell. A portion of the alkalies possess the well-known property of rendering albuminous substances soluble. Thus any remains of tissue adherent to the walls of the canal are dissolved, the latter become macerated, and access to the dentinal canaliculi is possible sooner than can be effected by any other method thus far employed. Destruction of the organic contents of these canals is now possible. You will readily understand that in consequence of such destruction the disagreeable discoloration which too frequently occurs will be absent and that the lime salts of the tooth proper are in no wise injuriously affected by the treatment.

The introduction of the potassium and sodium has the additional effect of destroying the bacteria partly by the heat produced, and partly by the new products formed. The contents of the canal have been transformed into a sterile and probably antiseptic mass and thus the development of new colonies of bacteria is prevented; everything has thus been accomplished which precedes permanent filling of the tooth.

A series of questions will no doubt spontaneously arise in your minds which will take form somewhat as follows: Have any particles of the septic contents of the canal been forced through the apical foramen before sterilization has been complete and so caused infection of the alveoli? Has the destruction of the bacteria been shown to have been certainly accomplished? And finally does the preparation adhere to the nerve needle sufficiently to be easily transformed to the canal?

It will not be difficult to give a satisfactory answer to all these questions. I hope to have the opportunity of demonstrating my method on a living subject and you will see how the transmitted mass travels in the direction of least resistance, that is, into the orifice of the canal next the pulp chamber, and wells up alongside of the needle. But the results of practice better than mere theoretical deductions demonstrate the groundlessness of such apprehensions. Reports from various sources are at hand as to the results of the preparation in practice. They are all eminently satisfactory. This would be impossible if the infection of the alveoli had occurred in any but the most insignificant porportion of cases. That the bacteria are actually destroyed, I have proven by cultivation experiments with the full description of which I shall not weary you. Hardly any one would seriously doubt the possibility of the method practiced by me in effecting the destruction of organic life. I shall best succeed in convincing you that the preparation has sufficient consistency to adhere to the needle by passing it around in actual contact with the needle. I shall probably have an opportunity of expressing myself upon various questions which may be raised in the discussion. It is scarcely necessary for me to state that my plan of treatment should only be practiced with the cofferdam. In an assembly like this, this fact will appear self-evident; of course care must be exercised in manipulating with the preparation. With proper care the preparation is free from all danger.

A further question may be raised whether the methods heretofore employed do not give such satisfactory results that the introduction of a new one is superfluous. I believe that I am entitled to say that the plan of treatment proposed by me is founded upon correct principles and meets the obvious indications as regards ease and rapidity of application and certainty of result. It is to say the least the equal of any method. Every practitioner is in a position by the aid of my preparation to save with rapidity, ease, and well-nigh with certainty, teeth that have been seriously affected and that without special preliminary preparation and without, troublesome appliances. Thus the benefit of treatment of the root becomes possible for the masses. Inasmuch as the greater portion of mankind is forced to lose the teeth for lack of the means of calling in the aid of the dentist at the proper time, I do not assert that my method marks an important epoch in the progress of root treatment, and I take the liberty of requesting you to submit the method proposed by me to your distinguished consideration.

DENTISTRY AND DENTAL SCIENCE IN JAPAN.*

BY K. TAKAYAMA, M. D., TOKIO, JAPAN.

GENTLEMEN :—I am very happy to have the honor of speaking a few words in this grand meeting. There is no greater honor for me than to speak in your presence. But my knowledge of English being narrow, and especially very bad in speaking, I am afraid it will be very difficult for you to understand what I am going to speak about. So I hope you will guess my meaning with your bright intellects.

Now, what is most necessary for the preservation of our life? Why, getting bread and clothing and avoiding diseases. So it is our firm belief that among the present sciences, those which put forth their springs in the earliest times are sciences of agriculture and industry, as well as medical science. Then it is hardly necessary to say that dental science, a branch of medicine, took its source in the remote antiquity; because the tooth is one of the most important organs of a human being, and it is very liable to diseases, and besides it sometimes becomes the cause of diseases of the other organs. We cannot, however, say whence the science took its origin, because we have no history of the fact.

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*This paper was to have been read before the Dental Congress, but it was mislaid and did not turn up until a week afterward.

In Japan, according to Mr. Taguchi, a famous Japanese scholar, dentistry seems to have become a special employment for the first time about the fifteenth century in the beginning of the Tokugawa era. But at that time those engaged in it were not treated as physicians as at present, on the contrary, they were scornfully rejected from society and their employment was considered one of the lowest occupations. To speak about the cause of the fact. Among them there were not a few who, having succeeded in their business from their fathers, had a great skill in the art, but the majority of them were outcasts of the Samurai (the same as the knight), who did not understand their proper profession of military art. These had no knowledge of medical science, but having been dispossessed of their estates by some misconduct, were obliged to make dentistry their means of supporting themselves. These ignorant dentists were exclusively engaged in extracting sick teeth and inserting artificial teeth, and they did not even dream of so-called "fillings," "crown-works" and "bridge-works" of the present day. And being destitute of anatomical and physiological knowledge, it was impossible for them to extract the double-rooted teeth, so when they were asked by a patient to extract molars, they used to decline the request on various pretexts. Even in the case of the single-rooted tooth, they sometimes applied so cruel operations that the recollection of them produces a painful feeling. The methods of inserting artificial teeth were also in a miserable condition. Materials for them were mostly the ivory, gems, horns, woods and stones, and as these matters are oxygenated by the temperature and damp in the mouth, and produce a kind of offensive smell, these artificial teeth were very injurious to the lungs and stomach. Moreover, as they were tightly bound to other teeth by threads, they were very dangerous to the health of the other teeth. Then it was quite natural the dentists of the Tokugawa era were contemptuously treated, and this scornful feeling has unfortunately continued to the present time, and we dentists are very sorry to think that this feeling has a tendency of being an obstruction to the progress of dental science in Japan.

But since the Meiji revolution the tide of western civilization has flowed into Japan with a wonderful rapidity, and great improvements have been effected in various things. Dentistry has also been greatly improved. In the beginning of Meiji an American, coming to Japan, opened the practice of dentistry at Yokohama, and along with his business he taught several Japanese his art. This was, indeed, the very beginning of study of the American dentistry by the Japanese. Then many of our countrymen saw that the dentistry handed down from their ancestors was so imperfect that it was not applicable to the progressive state of their society, and they felt the urgent necessity of introducing American dentistry. Stimulated by this necessity some Japanese studied the art under instructions of the Japanese who had been pupils of the American, and some others went to America for the same purpose. Thus, by and by many of the Japanese began to turn their attention toward American dentistry. Especially since in the fourteenth year of Meiji, a law was enacted by which a dental examination was organized about the theories and practices of the western dentistry and soon afterward, it was established that any one could not open the business without passing the examination; a great stimulus was given to the study of dental science. The necessity of methodically studying it as a special subject was strongly felt by the public, and at length a dental college, a dental association, a lecture meeting on the science and several other societies of the same sort have been established in the city of Tokio. All these institutions have a suitable number of members and they have the bright prospect of giving a great encouragement to a wonderful progress of dental science. The number, again, of those who have passed the dental examination is above two hundred, and those engaged in studying the science are counted by the great number of over one thousand.

Thus the dental society of Japan, has presented a prosperous state ; yet when compared with the development of medical science in general, we must pronounce it still in a very backward condition. As Japan had made intercourse, especially with Holland, before it began to associate with nations in the world, the European enlightenment had been introduced through that country, and consequently science of medicine was also brought in a very early time. And afterward when a treaty of intercourse was concluded with all the nations, Japanese government, recognizing the importance of medical science, made efforts for the encouragement of the science. As the result, in the medical society there have appeared numerous great authors and excellent doctors, and the progress of the science is wonderful. Thus the present condition of the science is not much inferior to that of the European and American medicine.

To number medical schools: First, there is the medical college, under the direct control of the educational department. Second, the medical branches of the five higher middle schools. Third, the several medical academies established by various provinces; and fourth numerous private schools which are not inferior in their course of study to government ones. Consequently valuable books and magazines on medical science are published in a great number, and there is not a day on which we do not see notices of their editions in newspapers. But if we, turning our eyes to the other side, take a glance at the dental society, we cannot help being sorry. Why, notwithstanding there are overflowing schools of other kinds, we have only one school of dental science, namely: The "Takayama's Dental College," established by me. This is a small school supported by me without the assistance of others; and although it is not able to compete with dental colleges of this country, yet it has happily over one hundred students; and it has been able to introduce thirty-eight dentists into our society during the several years which have passed since its establishment. And I intend to observe the actual states of various colleges by my present tour through this country, in order to prepare materials for the improvement of my college after my return to Japan.

Again, in our country, dental books have been hitherto very few; and this has been a great difficulty in young students learning this science. To supply this deficiency, I have begun very early to write about it, and I have been able to publish "Preservation of the Tooth;" "Questions and Answers on the Health of the Tooth;" "Operative Dentistry;" "General Principles of Dental Science;" "Dental Mechanics;" "Dental Metallurgy;" Anatomy of the Fifth Pair of Nerves," and a few other books. I believe that although these books are not worthy to be rendered perfect text-books, yet they are sufficiently answerable to the pressing demand of the present dental society.

Of late Messrs. Isawa, Katagama, Sugamama and others, who have studied dental science for a long time in America, have begun to edit a dental magazine, in which new theories and operations are introduced to our society. It is a small pamphlet published once a month, and seems to be getting the general admiration of the dental society. Besides this journal there is also a monthly report, edited by the dental association already spoken of.

The dental science in Japan, as I have now spoken, is in a very backward position in comparison with medical science in general; but I believe both these sciences will come at last into contact, and they will develop rapidly side by side. Let me speak about the reason why I think so. In Japan, as has been said, medical science has made a great progress, and dental students have much more facilities than in America for studying pathology and physiology. Consequently, if one does not learn these two sciences he is sure to be kept out of the medical society, so our dental students are very anxious to study them methodically. This is the very favorable condition for the further progress of dental science. Moreover, Japanese students are, as one of the peculiarities of the Japanese, capable of fine manual labor; and, therefore, it is not difficult to let their science produce a brilliant effect by their clever hands. And as I have hitherto been engaged in the business of dentistry, and I am eager to give help to the development of the science, I am very earnest to see such a prosperous destiny for it.

In a word, although the dental society of Japan is no doubt still in its boyhood, it is my unhesitating belief that it will soon grow up into one of the powerful influences in the civilized world; and I think all gentlemen would enter into my opinion. And is this hopeful condition owing to whom? Why, to America. The present prosperity of dental science in Japan was indeed originated by an American dentist, who opened the business at Yokohama; next by young Japanese students who went to America for the study of the science, and lastly it has effected by the continual introduction of new theories and operations from it by convenience of intercourse. Thus all the progress of the science must be ascribed to America. Then the dental society of this country is mother to that of Japan, and, *vice versa*, the Japanese dentists are, so to say, children of American dentists. And is it not one of the important human morals that when a mother meets a grand ceremony her children gladly welcome their mother? This is the reason why I have attended this grand assembly and spoken about dental science in Japan, as a representative of our dental society, to express its gratitude. I thank you for your having heard my nonsensical speech in silence.

The Widening Field of the Dental Profession.*

By Frank W. Sage, D. D. S., Cincinnati, O.

It is a curious and interesting fact that both before and since the recognition of dentistry as a specialty of medicine, the chief expressions of dissent have come from the ranks of the profession so recognized. Up to the time of this official recognition, when on various occasions dentists had been invited provisionally to take part in medical conventions, some prominent men among the dentists expressed themselves in terms of disapproval, amounting almost to resentment. But when distinct recognition finally came, this open opposition suddenly ceased, and dentists went about exchanging congratulations, not giving themselves any particular concern as to individual eligibility to the ranks of the older profession, under the conditions named in the resolution of recognition.

It was enough to know that the door had been opened; dentists in some considerable numbers—not the largest perhaps, such as might have been drawn into dental conventions—flocked into the dental sections of the medical conventions, anxious to secure personal recognition. There is reason to suspect that the credentials of some of them were not very keenly scrutinized; at all events it is not certain that any one was challenged as to his fitness, provided he could write the D. D. S. after his name. It was not brought to light that any committee of medical men had inquired and reported as to the standing of individual dental colleges, with a view to requiring conformity to the express conditions named in the resolution admitting their graduates to medical conferences. In short it appeared that the medical profession was good-naturedly lenient in this particular manner, feeling probably, that the dentists were ambitious, dead in earnest, and not likely to abuse their privileges. In the first general convention of physicians and dentists held after this official recognition, it may be recalled that the dentists in their section all but ignored dentistry proper. Papers on skulls, facial tumors, physiognomy, oral surgery and so on, were read, and sparingly discussed by members who seemed to be overawed by the momentous character of the occasion. It was amusing, almost ludicrous, in its solemnity, and yet in a sense pitiful, in the constraint imposed upon the participants. The session was notable in one respect: with one or two exceptions the papers read were by men who bore the double title M. D., D. D. S.

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*Read before the Cincinnati Odontological Society.

All things considered, the effect of this meeting was wholesome. It stirred and stimulated the dentists and brought them to realize that study and work were required of them individually, if they were to sustain themselves in the position to which they had been assisted by the older sister profession. Meanwhile, during the lapse of years since the first assembling of physicians and dentists in conventions, some dentists who have neither actually held aloof nor actively participated in these conventions, have continued to doubt the expediency of this practical attempt to graft dentistry upon the parent stock. They have ceased to air their views and opinions in the dental journals. But there are indications that they still hold them, waveringly perhaps, because of inability to solve the many complex problems presented from whatever standpoint they view the matter. The profession stands to-day in the anomalous attitude of having accepted and yet *not* having accepted this invitation extended by the medical profession. While there has been no express declination from any quarter, there still prevails this feeling of indecision, such as might not unreasonably be looked for, when we consider the heterogeneous character of the body of the dental profession.

Meanwhile we are witnessing the singular spectacle of one class of men in the profession, those who find themselves already qualified or able to qualify, flocking eagerly to the newly-erected standard ; another class more conservative and professing satisfaction with the highest standard previously erected by dentists waiting in a noncommittal attitude ; and a third class, with reputations based more expressly on the mechanical ingenuity and operative skill, helplessly drifting in the current of popular opinion and wholly unable to surmise how and where they are to land.

But whatever may be individual opinion of the question still being privately discussed, "is dentistry a specialty of medicine," the fact can no longer be ignored that a new era in dentistry is opening before us. Like other advance movements, this impulse, looking to a higher standard of attainments for students of dentistry in our dental colleges, appears to be not directly the result of concerted effort by individual members of the profession. It is rather, in a larger sense, the spontaneous manifestation of a sentiment which "came into the air" because the time was ripe for it. Dimly defined it still remains. And yet it reveals in its faintly drawn outlines the embodiment of the idea that dentistry in the future is to include in its domain a larger part of the field of general medicine. It also brings with it a suggestion that nothing requisite to the full, liberal equipment of the dental student, will need to be sought for outside of the walls of the dental college. The movement has indeed already commenced, as indicated by the extension of the dental college course. This practical step has been taken in recognition of the fact that the resolution adopted in the medical congress at Washington was a frank admission of ability on the part of the dental schools to fully qualify their students as representatives of the dental specialty of medicine. There is nothing in that resolution indicating a wish that dental students should pursue a course in the medical colleges. As a matter of fact it has been once or twice intimated that members of the medical faculty have betrayed indications of distrust of dental students who have applied for admission to medical colleges, avowing their purpose to practice dentistry. If there be any truth in the statement, it would seem to indicate doubt as to their assiduously applying themselves to subjects remote from dentistry so as to do credit to their alma mater. It may however have been merely disapproval of a practicing dentist's devoting only part of his time to a course of study calculated to occupy *all* of the student's time.

It is not the purpose of this paper to discuss the question of the competency of dental colleges to educate their students in a three years' course, to a point which shall fulfill and satisfy the expectations of the most exacting. The most conservative among the opponents of this recent movement extending the course of dental instruction, will hardly deny that the dentist should know how to prescribe for his patients; should be able at least to identify all oral diseases, tumors, ranula, necrosis, salivary fistulæ, ozæna, the aphthæ, and other diseases requiring medical attention, even though he be unable to treat these conditions. Such knowledge, at least, on the dentist's part, he is required imperatively to possess. From this it is easy and natural to go a step further and say that he needs to know more of reflex nervous reaction, diathesis, idiosyncrasies, shock, hysteria, febrile conditions, symptomatology, and so on.

It will be seen that in pursuing these and kindred subjects indispensable to the dentist's education, the student will naturally be led, by processes of induction in his investigations, into fields remote from practical dentistry, and trenching upon the domain of general medicine. Now the question arises, when and at exactly what point will he have gathered all the knowledge collateral to the subject of dentistry, which he is likely to require in practice? The resolution of the medical congress, to which we have referred, conveys a suggestion by implication, that something may be omitted from the dentist's knowledge of medicine, his acquirements in his own special field of dentistry being accepted in lieu thereof. If this be a correct interpretation of the wording of that resolution, how are we to account for so extraordinary a concession by the medical faculty, to the dental profession? No other class of medical specialists have been so favored. Was it not done in recognition of the fact that dentists as a class render to their patients a unique service, requiring for its full and satisfactory performance less of the general knowledge of medicine than pertains to the ministrations of any other class of specialists?

It seems probable that in this view of the case, the medical profession in a pure spirit of compliance [sic], made this concession to dentistry. They recognized dentistry as a specialty of medicine. To have refused it such recognition would have been merely to deny to dentists the use of a convenient term. For that dentistry *is* a branch of the healing art is patent on the face of the statement; it is not a matter of opinion at all; it is a matter of fact. Now considering this question logically, the medical profession might have said to the dentists, we find you practicing *irregularly*, a special branch of the healing art, which art we as physicians profess to practice in its entirety. For the reason that you are not as we are, regularly educated physicians, we cannot, however, recognize you as medical specialists. It is nothing to us that you find it inconvenient, or even impracticable, to spend three years studying medicine, and three more years in the study of dentistry. The question which concerns us as physicians, is, are you educated in medicine, as are all our other specialists?

But what the medical profession did virtually say to the dentists, is this: You dentists deserve special credit and honor for having created and developed a specialty from which we, all these years, have stood aloof. We admit that you might with propriety question whether we, as physicians, could or would have tilled this field, if you had never occupied it.

We have never prepared any of our own members, by our own unassisted efforts for this specialty. With all our knowledge of general and special surgery, we have not even learned to extract teeth skillfully. We have been under the necessity of inquiring of you why teeth without living nerves ache; we have resorted to you for assistance in our attempts to reduce anchylosis of the jaws, for special splints, for the relief of neuralgias, etc. In short, we find that you have developed a specialty by methods of induction which brought you within the realm of our general field. We think that you might have made still more rapid progress, if you had begun your researches and investigations on the basis of a liberal medical education. But even *that* may be an open question. Your specialty is peculiar, both in its offices and in the training required, and we are willing to admit you to membership among us on the most liberal terms consistent with the preservation of our own character as a profession.

Notwithstanding the fact that the dental profession has shown full appreciation of the honor conferred upon it, there is still a strong undercurrent of sentiment cropping out occasionally in the inquiry whether a medical training such as was evidently contemplated in the resolution, is best for the dentist. Men who raise this inquiry boldly proclaim that dentistry is essentially mechanical in its leading features, that it is in no important sense allied to medicine, and that experience shows that with but few exceptions members of the dental profession who have come into it from the ranks of the medical profession, have not attained the highest rank. They profess to find in our dental schools as now constituted, all requisite aids for a successful career in dental practice. A separate essay might be written on the question of the mental characteristics of men who incline to dentistry, and those who incline to medicine. Admitting for the sake of argument, that the highest order of mechanical talent is requisite for the attainment of a prominent rank in dentistry, the question arises, are men of this mental cast capable of pursuing profitably a course of study dealing so largely in theory, as the science of medicine? It cannot be too emphatically stated, that inasmuch as this question of a medical education for dentists must be considered as regards its application to the collective body of coming dentists, we need to avoid a possible error, in considering only the comparatively small number (alleged to be) of successful medical-dentists, and on our judgment of them, requiring of all future dentists a standard of attainments equal to theirs.

The writer's own individual opinion is, that the combination of the highest order of mechanical talent with such mental qualities as enable a man to excel as a physician, is rarely found. It is of course impossible to say what progress in medical science might have been made, early in life, by some of the men now ripe in years, who enjoy a world-wide reputation as dentists. But if there be any significance in the fact that certain of these men, distinguished as some one has put it, for being "all dentist,'' seldom or never take noticeable interest in anything not directly pertaining to the *art* of dentistry, it must be admitted that they would probably be found wanting in the faculty of applying themselves to books and to study.

Still, in all that we have just said, it may be objected that this combination of the very highest order of mechanical talent and the medical predilection, is not to be expected of the mass of students. Many men in medicine and dentistry respectively, who never attain to more than local reputation, nevertheless serve their patrons acceptably and enjoy their confidence. In answer to that objection we need only say that there is nothing unfair in comparing two representative members of these two professions—dentistry and medicine—selected as types of the highest attainment in their respective fields. It is only by measuring and comparing each with the other, men who represent the very best products of their respective courses of training, that we shall be enabled to even approximate a decision as to what should be the average course to pursue in order to produce a new type of professional man combining in himself the best qualities of these two distinct types.

It is not the object of this paper to consider what may be done by individual members of the dental profession already in practice, to improve themselves in knowledge. It is not to our purpose to suggest that they enter upon a medical course. Until the present generation of dentists shall have passed away, it will probably continue as now to be a mooted question whether dentists should be imperatively required to extend the range of their ministrations to their patients, beyond the care of their teeth. At the same time this very question is of interest and significance, since upon its final settlement—if such a thing were possible—might be predicated a feasible course to be pursued in the future instruction of the dental students.

If it should finally be decided that students must study medicine before entering the dental college, would not consistency require some changes in the administration of the dental colleges? Shall the full-fledged medical graduate be required to sit for instruction at the feet of a corps of professors some of whom are not medical graduates? The same dilemma would present itself in lengthening the course of the dental schools, so as to embrace a partial medical course, unless it be that the instruction in the extended course were committed solely to the medical members of the dental faculty, in each particular school. But even then it seems that the graduate under the new dispensation, must appear superior to some of his teachers. Even should the teacher have previously prepared himself by private study to escape from this foreseen dilemma, he might not find himself ranked on an equal footing with his pupil. This matter must, however, be faced boldly and frankly. Already some of the colleges—one or two—are requiring a preliminary examination in algebra, geometry, Latin, and other branches just beyond the verge of a common-school education. It would be interesting to know how many teachers in dental schools have never studied these branches. This is not written in a spirit of cavil, but as a reminder that if a reform is to be instituted, no man should shrink from a personal fulfilment of all its requirements. Nothing is to be gained by mere pretentious claims. We are tempted to question the expediency of requiring a smattering of Latin, geometry, and history, of matriculates. A full course in Latin and Greek, extending over three or four years, is of important advantage to the student of anatomy, physiology, histology, therapeutics, and other kindred branches. But a mere introduction of these languages, which gives one no express familiarity with their root-origins, idioms, and structural peculiarities, is of no practical value. We see no significance whatever in this preliminary requirement, unless it be the demanding of a guarantee of the student's having acquired a habit of study such as will enable him to grasp and appropriate the substance of the lecture he will listen to. Even in that view of the matter, it is a question whether previous devotion to book study is the best kind of preparation for the listener to the spoken words of the lecturer.

The study of books develops the reflective faculties; but it tends to divert the mind from a habit of quick and ready observation of facts presented in rapid succession by the speaker. The great requisite for the hearer is a habit of attention and observation. This faculty is possessed in an eminent degree, by reporters, who at their best, seldom possess the peculiar habits of mental abstraction and deep reflection such as mark the able editor. There seems to be some distinct recognition of these differing mental habits in the fact that some lecturers actually discourage note-taking while they are lecturing.

It is obvious, then, that the student who is likely to make the most substantial progress under present methods of instruction in the dental colleges, will be found to unite in his mental constitution, both faculties named, viz., the habit of attention and quick apprehension, and a habit of reflecting. It remains to be considered whether in a preliminary examination of a candidate for matriculation, natural aptitude is not of much greater importance than the mere question of so much Latin, geometry, history, etc., previously acquired. This query is suggested by the well-attested fact that students in our dental and medical colleges, who possess much natural intelligence with but little book-learning, frequently pass the best examinations. And then follows another well-attested fact, that these very prize-winners, frequently fail in the practice of their professions.

So then we may well doubt whether the present means suggested, and in some cases actually in force, for anticipating incompetency in would-be matriculates, shall prove effective. And yet it is difficult to suggest any better course. It may be necessary, before the desired object is attained, to revise some of our present ideas of conducting a course of instruction in our colleges. More study of books and fewer lectures, might lead to a solution of the question. In the foreign universities we find evidence of considerable latitude of opinion as regards the question of the utility of the lecture system. The great requisite is ability on the student's part to pass his examination; the means of preparation being held virtually of secondary importance. A lecturer in one of our [Cincinnati] medical colleges once answered this question; what is the important advantage of attending a medical course in college over a thorough course of reading under the direction of an intelligent preceptor? by declaring that it was in the opportunities for observation and practical demonstration in the hospitals. Is there not in this a hint for dental instructors? If we are to demand of the student better qualifications for study, shall he not be allowed more time for more study, practical demonstration, and less attention to lectures?

But whatever is to be the future education of dentists, the prime object, that of making students thoroughly competent *as dentists*, must not be lost to sight. The dentist came into being in response to a popular demand of a rather definite character, and a dentist he must be, in order to meet that demand. Possibly in the end this question will be solved independently of individual preferences, resolutions of medical congresses, or the aspirations of ambitious teachers. Neither the pride of the dentist who has enjoyed the advantage of a full medical course, nor the chagrin of the dentist who has missed that advantage, is certain materially to affect the result. It is after all, strictly a question of demand and supply. The man who best succeeds in saving teeth, who is most skillful in extracting teeth past saving, who shows superior judgment and artistic taste in providing artificial dentures, is certain to survive, by favor of public sentiment.

CINCINNATI, Sept. 26th, 1893.

REFRACTORY MATERIALS.

By CARL FISCHER, CHICAGO, ILL.

The most infusible and widely distributed substances in natures' laboratory are principally the four following oxides: silica (SiO_2), alumina (Al_2O_3), lime (CaO.), and magnesia (MgO). Either one alone is scarcely affected by very high temperature, but a mixture composed of three or four of these will form a slag as demonstrated in the blast furnace. The silica and alumina in the iron ore are fluxed by addition of limestone. Glass, (simply a transparent slag) also demonstrates this reaction. Window glass has about the formula $6\ SiO_2\ CaO\ Na_2O$. If we add other oxides, the fusing point is lowered. For instance iron oxide (FeO or F_2O_3 or Fe_3O_4) manganese oxide (MnO) or lead oxide (PbO) or alkalies (Na_2O or K_2O). The latter affecting the fusibility in the largest degree.

Silica (quartz, flint, etc.) is very infusible and has no plastic properties. All sands are composed of silica mixed with varying amounts of clay (Al_2O_3), iron oxides, lime, magnesia or alkalies (in the form of mica. The amount of these admixtures controlling its fusibility. The clay supplies the plasticity. To withstand a temperature of 3,000 to 4,000°F. a brick (Dina brick from England) is made, which consists of

Silica, 96.14; Clay, 2.12; Lime, 1.55; Magnesia, None.

ANALYSIS OF MOLDING SAND.

For casting purposes in iron foundries a sand of the following composition has sufficient plasticity and fusibility:

Silica, 82.40; Alumina, 7.30; Iron Oxide, 5.30; Lime, 1.20; Magnesia, .75; Water, 3.05.

For castings made from zinc, lead, Babbitt metal, etc., as dies in the dental laboratory, the sand sold by Dr. Chase answers the purpose well. It contains plenty clay to make it plastic, and being ground very finely it gives smooth surfaces to a casting. The plasticity is still increased by addition of a heavy oil or glycerin. Its composition comes nearer being clay than sand. I found

Silica, 69.40; Alumina, 14.90; Iron Oxide, 5.80; Lime, 2.11; Magnesia, 1.22; Oil, etc., 6.57.

Ganister is a quartz rock, which finely ground is used in steelworks for a vessel lining. It is:

Silica, 96 per cent; Alumina, 4 per cent.

Tripolite (infusorial earth) is in the main composed of silica, hence quite infusible. Large deposits, either uncompacted or moderately hard, have been formed from the silicious shells of microscopic animals.

Alumina (Al_2O_3) as found in the pure state is very hard, and appears in commerce under the name of corundum. Emery is alumina and magnetic iron oxide. One alteration product of corundum (by taking up water chemically) is found in nature, called bancite (Al_2O_3 2 H_2O) and finds its chief application in the manufacture of aluminum. Alumina in its most abundant form exists in combination with silica. Kaolin or china clay has the composition: SiO_2 46.5 Al_2O_3 39.5 H_2O 14.00; being infusible after the water of hydration is expelled. It forms the basis of a clay. Besides clay contains sand and as impurities all the other oxides found in sand. A highly refractory clay comes from Mt. Savage, Md. and runs:

Silica, 60.19; Alumina, 29.10; Iron Oxide, .89;
Lime, none; Magnesia, trace; Water, 9.88;
Or Sand, 31.84; Kaolin, 67.07; Iron Oxide, .89.

The uncombined silica (sand) in clay prevents undue shrinkage in burning, the other oxides determine the fusing point.

I give here a few analyses of Ohio clays of medium quality:

Silica	62.94	63.60	58.40
Alumina	26.59	25.58	30.73
Iron Oxide	1.08	1.84	.43
Lime	.57	.73	.55
Magnesia	—	—	—
Water	7.01	6.28	9.89

The clay sold in hardware stores in Chicago under the name of "Stove Fix" can be used as part of an investment compound. It runs:

Silica, 60.00; Alumina, 27.56; Iron Oxide, 3.60;
Lime, 2.72; Magnesia, 1.80; Water, 4.28.

Dr. Chase's investment compound consists of about equal parts moulding sand and plaster paris. Analysis gives:

Silica, 40.90; Alumina, 6.70; Iron Oxide, 4.10;
Lime, 2.78; Magnesia, .93; Plaster of Paris, 43.03.

Calculating the result after subtraction of plaster, we find:

Silica, 70.81; Alumina, 12.09; Iron Oxide, 7.40;
Lime, 5.01; Magnesia, 1.67,

being nearly the composition of the molding sand.

A very good mixture which will stand a high temperature is composed of

Silica sand (glass sand), 40 pts.; Molding sand (iron), 2pts.;
Fire clay, 1 pt.

It has been used in molding the large steel castings for the U. S. Navy. Mixed with plaster paris it would make a good investment compound. (All these compositions must be ground very finely and run through an eighty, or still better, 100 mesh sieve.)

Pumice may be considered here, being, (if artificially made), the result of semifusion of clay and feldspar, and reduced to powder. Feldspar is a double silicate of aluminum and potash, (or soda). Nature, by dissolving out the potash, leaves the kaolin as deposit.

Lime (CaO) has too great affinity for water to be useful in the dental laboratory, but it is absolutely infusible. The lime light produced by the oxyhydrogen flame proves it. The carbonate of lime, $CaCO_3$, is used by the dentist. Marble is but pure limestone, (calcite). Whiting, (precip. chalk), has the same composition. It is made by dissolving limestone, (marble, etc.), in acid and neutralizing with an alkali carbonate. The chemical reaction being

$$CaO\ CO_2 + H\ Cl = CaCl_2 + CO_2 + H_2O$$
$$CaCl_2 + (NH_4)_2\ CO_3 = CaO\ CO_2 + 2\ (NH_4)\ Cl.$$

A mixture of calcium and magnesium carbonate exists in nature, called dolomite, resembling calcite in physical and chemical properties. These carbonates will not alter their volume if subjected to high temperatures and deprived of their carbonic acid (CO_2). Bone ash, cuttle fish concludes this group, being in the main composed of calcium phosphate.

Magnesia (MgO) alone has not found much application in the dental laboratory, although a mixture of sand, magnesia and magnesia chloride makes quite a refractory cement. A very good firebrick is manufactured which resists the temperature of a melting furnace. It is:

Silica, 3.49; Iron oxide, 9.29; CaO, 1.07; MgO, 86.04.

The brick is made by burning (calcining) the natural carbonate (magnesite) and binding the resulting powder with tar to form the shape, and burning again.

Of soapstone two varieties exist: One, called talc, is a silicate of magnesia ($4\ SiO_2\ 3\ MgO, H_2O$) losing its water at red heat, the other saponite, a hydrous silicate of magnesia and alumina.

Asbestos (from the Greek for incombustible) is a calcium magnesium silicate. In conclusion I mention a substance which may be used as a substitute for asbestus, namely, mineral wool. It is obtained by blowing steam through lignis, blast furnace slag, and has about the following composition:

Silica, 32; Al_2O_3, 13; CaO, 35; MgO, 20.

The most important of this group is calcium sulphate ($CaSO_4$) commonly called plaster paris. (The name is derived from the locality where it is extensively mined, Mt. Martre, near Paris, France.) Made from gypsum ($CaSO_4 + 2\ H_2O$); it is also found in the native state.

THE CONGRESS.

Now those who were present can certainly say, "Well done, good and faithful servants," for they were the life of the Congress, and held a welcome hand for the members, and especially for those from other countries. I am only sorry you were not present yourself to appreciate the efforts put forth to make the Congress a pleasant place of meeting, as well as a most profitable one.

The President, with his wonderful staff of officers, was sufficient guarantee for the success of this huge undertaking before them, but this is just where our American brethren avail themselves of the opportunity to exhibit their tact and ability in handling gigantic affairs with success. They are no cowards, and the larger the work to be encountered, the more pleasure they take in accomplishing it. It was thought possible the Congress was somewhat unweildy, but judging by the way they kept the interest up and the attendance at each meeting, section and clinic, one is only left to congratulate the officers on the excellent, systematic manner they handled this seemingly unmanageable Congress, proving our neighbors are capable of anything they undertake.

There are some people eager to accept the invitation and hospitality offered to them, yet show so little appreciation or possible apathy in the matter they did not deem it necessary to even put in an appearance. Surely they are not ashamed of the fact that they are members of the profession, the exercise of which furnishes them with their daily bread. It will be indeed charitable to suppose this attitude, or lack of interest displayed, by the members from localities quite familiar to us, was due to unavoidable circumstances.

The Congress is a wonderful teacher, and instils one with a motive to enter into fresh studies with a zeal; let it sufficice to say if it acts on them all as it has done with me it will evoke an interest that will be beneficial to conventions and the local meetings.

Dominion Dental Journal. FRED J. CAPON.

THE DENTAL REVIEW.

Devoted to the Advancement of Dental Science.

PUBLISHED MONTHLY.

EDITOR: A. W. HARLAN, M. D., D. D. S.

ASSOCIATE EDITORS:

C. N. JOHNSON, L. D. S., D. D. S. T. L. GILMER, M. D., D. D. S.

INTERNATIONAL FRIENDSHIPS.

The Dental Congress was conspicuous for the friendships renewed and new acquaintances made; this insures for the future more cordial relations among dentists. The congress was wanted as much for this as for the exposition of science, and having accomplished so much goes a long ways toward raising educational standards everywhere. At present writing we have no suggestions or criticisms to offer as the method of doing the work of the congress but we are filled with gratification to think of the cordial relations between dentists now existing.

THE DENTAL CONGRESS.

The World's Columbian Dental Congress was a grand success.

Never before had dentists such a meeting and such a greeting. Never before such a mingling of nations and of tongues.

If any longer there remained a doubt as to the dignity of dentistry as a profession, that doubt must have been removed. An epoch has been reached. Our young profession has gained a sure footing and a prominent place along side the other learned professions.

The merits of the congress cannot be justly measured from work done in isolated sections, but from the work of the congress as a whole. A division of the business into sections was, of course, a necessity. Matters of great scientific interest were presented and discussed in each and all of the sections at different times during the meeting, but special attractions in some of the sections would occasionally draw an overflowing audience, leaving but few in attendance at other sections. In these depleted sections unprofitable and unscientific discussions, in a few instances, took place, and to judge the congress from such an element of weakness would be unfair and do violence to the triumphant work accomplished by that learned body of professional men.

We cannot fully appreciate the greatness of the work that has been accomplished until the publication committee has completed its task and the whole business of the congress is placed before us. These volumes will be of rare value, and will greatly enrich our dental literature. No dentist can afford to do without those proceedings.

The profession has risen to a higher plane, loftier thoughts and nobler impulses have taken possession of every earnest member of that great congress. Science has been advanced, fraternal ties have been strengthened, and more love for our profession fills our bounding hearts to-day. The deep sea may separate, physically, the grand men of our noble profession, but in spirit and in purpose we shall remain together.

Not only may we as a profession rejoice in this epoch, but the whole human race may well rejoice with us.

The triumph of a profession that relieves human suffering, promotes the health and happiness of the people, and increases the length of human life, as no other profession does, may well receive the hearty God-speed of the world.

Such is the impression made upon the mind of the writer by the World's Columbian Dental Congress of 1893.

BURLINGTON, IOWA. I. P. WILSON.

HEALTH AND RECREATION.

Feeling the need of a little relaxation after the close of the Dental Congress, we looked about for a quiet place in which to recreate for a few days. After some little exertion we succeeded in finding on the map of Indiana, in Orange County, the famous French Lick Springs. How to get there was the next problem. Looking on the map we discovered that right here in Chicago was the terminus of the railroad leading directly to the springs. Comfortably located on a handsome Pullman car, we took the "Monon Route" to the springs. These springs are reached directly from Chicago in about ten hours, from Louisville in three, and from Indianapolis in four hours, while St. Louis and Cincinnati are only about six and eight hours, respectively, from the springs. All roads lead to the "Monon," but the "Monon" only will take you direct from Orleans or Mitchell, Indiana, to the springs.

The springs are located in a beautiful valley through which passes the Lick river or creek. On either side rise hills some hundreds of feet high, clothed in a native forest of oak, beech, horsechestnut, elms, walnut, butternut, hickory and other varieties of trees. There are country roads for the equestrian or driver, and bridle paths for the horseman and pedestrian. The hotel is good and there are accommodations for 700 or 800 at a time.

The immediate park surrounding the group of houses is most picturesque and restful; there are eleven springs, among which are Pluto, Proserpine, Bowle's Lithia, Ceres, and other springs. The water from these springs issue from natural basins with unusual boldness and come from great depths. Are never affected by rains or surface water in any manner whatever. The temperature remains 55° Fahrenheit during the winter blasts and summer heat. The chemical constituents do not vary.

The composition of the French Lick waters, as shown by analysis and by their action on the human system in disease, shows that they rank in importance with the world-renowned mineral waters of Europe, which have attracted the attention of scientists in medicine and sufferers from disease from time immemorial.

These springs are not artesian wells ! They never cease to flow and therefore, the waters are always fresh and pure—never become stagnant.

The waters do not flow through metal tubing corroding it, and hence the waters are never blackened, and chemically damaged by the same.

A letter and analysis by Dr. Jos. G. Rodgers, of Indianapolis, taken from the *Western Medical Journal*, December, 1869, shows the extraordinary qualities of the water. Of them he says: "No Springs on this continent as yet analyzed afford more than a fourth part of the quantity of sulphureted hydrogen found in this source, and very few in any part of the world even approach it in this particular." The famous Sulphur Springs of the "Old Dominion" containing only from two to six cubic inches in the gallon.

To the overworked dentist a visit to these springs will be health's holiday. The waters are not unpleasant to take and the quantity to be taken daily will vary from seven to twenty goblets per diem. In cases of weak stomach, jaundice, chronic rheumatism, diseases of the kidneys or urinary organs. obesity and nervous affections they act marvelously. In the midst of nature, far from the noise and smoke of a city, mental and physical recuperation is exceedingly rapid and one regrets the arrival of the day when he must retrace his steps to the exactions of daily routine.

DOMESTIC CORRESPONDENCE.

Letter From New York.

To the Editor of the Dental Review:

Nothing can be more to a person of good taste than New York and its surroundings. Nothing slow here. The celebrated French caricaturist, Mons. Forain, who is now visiting Chicago says it is a bit too fast for him and the Madame. such a variety of quick movements and rumblings. We are a little rapid; never too slow but once, when the politicians were groveling, and the World's Fair went where Horace Greely told the young man to go, "out West." New York can never forget that. Five were wise and five were foolish. How often this occurs in this big world of ours! Of late some editors have been airing their supposed wisdom against certain kinds of dental and incidental gleanings and gossip, and have heaped no little vituperation upon them; particularly have they criticised the anonymous way of doing this. Emile Zola is just now stirring the literary world by his announcement on arrival in London that he is an advocate of what he terms "anonymity in journalism." He claims that it will restore honesty for it is a direct cut at the root of partisanship. Too many writers may be purchased for a price, which too often means manhood sold for money, or like the red-headed Esau "for a mess of pottage." It will be good reading for those tenderfoot editors who are too much owned by the companies employing them—what this renowned novelist is saying just now across the ferry. As he says, "There is much to be said on both sides." We are glad for our own sakes, for it has been our thought during our whole period of correspondence to be most of our own manhood. We have had only one aim, viz., to defend our real and true professional properties and never to allow personalities to smear earned professional reputations. We are more than pleased that the Review has so kindly sustained us by allowing us, so far as we know, to carry out our purpose. In our early attempts at correspondence (for glory—and mighty little of that—and the privilege of paying our own postage, et cetras we were notified by one of the editors (as Dr. Watts styled them "subscribers on the covers") that their New York or Eastern editor must edit our letters. Well, we wrote them a letter in italics and told them that they could not put us into any such kind of harness as that. It was soon announced to us the New York editor *must* be obeyed. We had no red hair on us so we shifted. The journal has since died of inanition. We have been told by a New York party, who has not always relished some of our talk, that we "had better tie ourselves to the men who had money." A certain man some years since said to the late Dr. Atkinson, "If you let us run you, we will make you the biggest man among us." If he was such a failure in finance as Prof. J. Foster Flagg has styled him in the printed proceedings of the joint meeting of the Pennsylvania and New Jersey Societies, some men would give their money if they could, for his knowledge and the memory which follows him. Standing on our merit is modest, to say the least, and in bondage to none. The most nonpartisan journal will win the best and largest attention in the long run. *The New York Herald* is an evidence of this. It is leading the world—not the "wicked *New York World*"— the universe, we mean. It is the readiest paper and the cleanest, setting aside its "personals." The world is getting tired of party "rule and ruin." Respecting another's opinions, though they may differ, is coming more and more into vogue, and it is a healthier sign of getting more, at the facts. "Anonymity" is the coming thought as a factor in the breaking down of the demand of selling out grey matter so "that my family may live," regardless of what I think. The *New York Herald* is uptown in its new and unparalelled structure, and has named the square where Broadway and Thirty-fourth Street intersect, "Herald Square." This is a long pull uptown from the Astor House. It has had the courage of its convictions, it has done it, and now it is telling of it. So different from many who boast beforehand; a rather dangerous thing to do.

For instance, take new colleges. This is not bad. W. W. W. "We say, pity for those who have been coming out with mushroom growth from the colleges. So they may say about my college." Well, there's going to be no "dead languages" or "lost arts" in my college. It will be the pure King's English every time, fee or no fee; for preliminaries before one foot goes over the threshold, and all examinations in old Holland, "finger nails clean," and no writing on them. Every student is to be manicured by a professional, examination day. The student that gets through my college is going out with his "Almy" mater. Too many have been going out alone, and have had hard facing a cold and unsympathizing world, and they too often die young, and funeral expenses are simply enormous, and we are so often called to help out. Why the King's English is to be exacted for preliminary examinations is because Johnny Bull has gone back on our American degrees, you know. Walker had it whispered in his ear "by the best men" that they held in high esteem the pure Anglo-Saxon, and that they had tried to be lenient for many years, and their idea had been to encourage by favoring Harvard and Ann Arbor, so when they saw W. W. W. they just made a clean breast of it; the last hair had broken the camel's back. Hence Walker's (college) saw the point and caught the trout. When he came back he called the wigwam into session and told the boys "the opportunity of a life time" had come; here is a chance to get in with Johnny, so he says, "Just bring your gun along, so that none of them (——) fellers can break in on us." So this is how the third New York College comes in; and the determination is that whoever discovers America the next time, New York will be entitled to the International Dental Congress, with all the English-speaking dentists represented, and a photograph of W. W. W. in their hat. He has never known defeat, and he is not beginning that way this year.

Quality is going to win all along all lines of professional attainment, and here comes in a good illustration. A gentleman who is zealously preparing himself for lecturing in one of our new dental schools was demurring because of what he termed an "intrusion" of another upon his field in New York, for, said he, "Do you know, I am preparing myself for this field? Do you not see the evidences of this upon my table? pointing to his array of open books and partly written lectures?" Aha! aha! the reply was made in this wise: My lectures, or rather conversations, are in storage here [putting his finger upon his head] and to be given out conversationally with the clinical associations of each case according to its needs. In other words "conversational teaching over the patient." The days of preaching have gone by; the world is growing very tired of it. It wants something fresh, and it is going to turn its attention to those who have digested knowledge. This is a hungry world looking at it from many points of view, and blessed will be the one who can answer this cry. Let every one who is feeling for knowledge on higher grounds read the article of Prof. Peirce in the September number of the *International Dental Journal* on "Affections of the Teeth," and ask "What does it suggest?" To our mind, we are hardly on the threshold of attainment, toward a sure scientific basis for practice. Truly, as he says, we are going round and round, method upon method, and when done "where are we at?" There must be, and there will be a new deal; it is in the air. The last thirty years have brought before our minds a large amount of thought, and the next thirty years will do vastly more to reduce to an intelligent system of adaptation. The duty of the hour is: Let each one choose the particular work that can be of help and adapted to his taste and ability, and bring it out as a contribution to the common fund.

We were saddened in reading of the sudden removal of Drs. Wardlaw and McElhaney—both were in attendance at the Congress; sad in this wise, that such occurrence seem to us premature. True, we are fearfully and wonderfully made, and considering how little our finite minds grasp the real purpose of living, it is hardly strange that we keep in tune so long as we do. Many felt a hearty sympathy that our grand and noble Dr. Wetherbee was sickened at the Congress—John Hancock as he is termed by his familiars, because of his style of dressing his bountiful quantity of hair. Dr. Wetherbee in his stately stature, his massive head, and firmly compressed lips, emphasizes his power. He is a man of mark, one who is inquired about to know who he is. His style is colonial. He is a spoke of no mean importance at the Hub, the Boston Dental College owes its existence to his personal energy alone, for he carried the Massachusett's legislature in his favor against no small amount of opposition. Dr. Wetherbee stands for marked ability, and is an honor to his neighborhood. We all wish him many years more among us. It will pay any one of ambition to give him a visit and note his orderly system of doing all his operations; and in all his surroundings, particularly his laboratory; a room that too many make a catchall of confusion. The Doctor's is as nice as a sitting-room and complete in all its appointments. We do not recall a single orderly and cheerful laboratory apart from cheapness of fittings, in New York that we have visited; there may be ideal ones. This reminds of a circumstance; a gentleman called upon us for some surgical service. He said he had been in Dr.——'s hands for nine years. We asked him what he had ever done to arrest this disorder. "Nothing himself, but his assistant took me into the laboratory about three months ago, and scraped them, and such a laboratory." This practitioner has a large and fashionable clientele in our city.

The first of October is nearing and familiar faces full of color and freshness are now seen upon the streets. The one question is, "Well, what of the Congress?" Our one reply is, "Read the Chicago Dental Review, September number." There is not a little surprise and disappointment that the Review did not give a fuller report of the proceedings of this notable gathering. We have answered in this wise that possibly this was purposely done to create a larger demand for the publication of the official reports. We are impressed that there is to be a decided impulse given to the coming meeting in April in the city of Rome. This is in line with the desire expressed in the Review. What a nice Spring excursion might be made by an organized trip to this city of ancient renown, dentists are so preëminently sociable as was so markedly manifested at the Congress—it could be made very enjoyable for fifty or a hundred to journey together for three or four weeks. Who says "amen" to this? Let a class of practitioners go who would give a decided emphasis to this meeting by contributions of such a calibre as would lift us all above the "*trade*" aspect, which is such an incubus upon our calling. We notice that Chicago has a reaching out for the best things professionally. Dr. Haskell has secured Dr. Brown's ability in connection with his school of Prosthetic Dentistry. It is enough to say that Dr. Brown is only the third generation from Varney; Varney, Webb, Brown, makes a trio of tooth-fillers that cannot be excelled. We think that the bill is filled by these brilliant operators. Many may not accept the every time putting into practice their ideal, but they have erected a high standard of excellency that will stimulate those who have an ambition to excel. Few will be able to reach the goal, but many will come far nearer because of the higher standards. No one with open eyes can fail to see what the effect will be in the near future upon the whole world, coming out of this marvelous energy crystalized in the World's Fair. No one will be asking where Chicago is, for she is now *celebrated.* Her fame will stand as enduring as the pyramids on the sandy plains of Egypt. Oh, let Chicago boast for well she may! A word of caution for Chicago dentists—don't go off in your pride and turn your backs upon us so utterly left out in the cold. "Charity suffereth long and is kind, is not puffed up, and thinketh no evil." If you do feel a little elevated just lend a helping hand in drawing up those unfortunate ones from the pit into which they have fallen.

QUID NUNC.

"IMPRESSIONS" OF THE CONGRESS.

To the Editor of the Dental Review:

DEAR SIR:—The greatest, most auspicious, instructive and in effect far-reaching association of dentists has just transpired in the meeting of the World's Columbian Dental Congress at Chicago.

To witness one thousand American dentists assembled, formally receiving one hundred and fifty foreign delegates, representing forty nations of the globe, was a spectacle presenting the climax thus far in the dental history of the world.

To the appreciative member this unique greeting was the realization of a dream, making the most profound impression of his life, awakening an exalted thrill of pride as he listened to the welcome given by this great body of typical American dentists and the graceful responses of the distinguished foreign representatives.

He must have been dull in appreciation, who did not declare to himself his pride and satisfaction in being one of a brotherhood whose achievements in the comparatively short span of one-half of a century have been so grand, and at this time presented for the world's recognition.

The magnitude of its lessons cannot be grasped in the present, its influence for our progress will be everlasting.

Mingled with these reflections must have been another thought that this event was not a happening; not a matter of chance. This congress was a creation, conceived and wrought to a success by well-known, brave and devoted men.

Chicago has for many years been the Mecca to which dental inquirers have been wont to make a pilgrimage, her profession has now been the host of the dental world, who will in turn freely pay homage to them, recognizing them as conspicuous factors of the projectors and perfectors of this crowning glory of our ambition in the First World's Columbian Dental Congress. G. B. B.

"IMPRESSIONS" OF THE CONGRESS.

The impressions formed upon the mind of one who attended the meetings of the Columbian Dental Congress must of necessity be many and varied in character. Of what these impressions consist, what classification of predominating impressions shall be adopted, or should there be no special predominating characteristics, to inquire into the causes which tend to the formation of such compact impressions, are problems of psychology exceedingly difficult of solution. Indeed, so closely do the impressions one receives during attendance at such a meeting interweave to form a general conception, that the effect produced upon the mind is very similar to that of a composite photograph upon the eye. The image is indistinct and blurred; the individual quality is present in a certain degree, but the predominant characteristics are so shaded one into the other that it will scarcely bear analysis. The picture, for a time at least, is so composite in its nature, so far removed from individuality, that only the general effect can be discriminated. However, as one seeks after the varied effects produced upon his mind, the one most prominent fact, and the one that has left the deepest impress, is that of the magnificent success of this congress. All the other impressions received must be subordinated to this one. The others, in fact, become mere radiating lines about this one, forming, as it were, the halo about this more brilliant central feature.

But as one studies the image for a longer period, here and there an impression stronger than the others discovers itself, and probably the next most prominent feature is one that has excited more or less wonder in view of the material subject under consideration. This consisted in the intense interest which was manifested throughout the entire session. Each attendant seemed to have come with the intention of giving and receiving all that was in his power to give or to receive. It is scarcely an exaggeration to quote from the Psalmist, "As the hart panteth after the water-brooks, so panteth my soul after thee, O, Knowledge," in description of the look of intense interest written upon the faces of some of the members.

Next in the evolution of impressions, the high order of the scientific work presented before this body, must be accepted as one of the distinguishing characteristics. As one strives to realize the extent, and amount, as well as the intensity and earnestness of the research stimulated by this meeting, the other features which so impress one are very apt to fade into insignificance for the time, at least. And why should they not do so? Was not this the real and fundamental motive for this congress?

Gradually another impression takes distinct form, and the social side of the meeting becomes one of the salient features. Who among those present was not impressed with the warm and hearty greetings between old friends, classmates and others, and more than all the renewal of old friendships and the formation of new ones, by the cordial, glowing messages brought from the ends of the earth by worthy messengers who embodied within themselves the kindly thoughts and feelings which their messages expressed? Could any object lesson be more instructive, more stimulating, more inspiring, or more enduring than this meeting of good-fellowship, in which so many nationalities were represented, and in which, although composed of so many varied elements, there existed but one animating desire and purpose.

Passing from the general to the specific impressions received, one may mention the spectacular effect upon the observer. This effect was pleasing beyond expression. The intelligence which was reflected from the faces of those who attended the various sessions, was indicative of the fact that the dental profession is taking rank with the older professions. The assertion can be made without contradiction, that no body of scientific men meeting within the walls of the congress halls have presented a better appearance. In no small degree was this impression deepened by the dignified bearing and distinguished aspect of those leaders in the dental world, who occupied official positions.

The ear also received its gratification in the opening address of the worthy President, and in his happy words of welcome to the representatives of foreign states. His address was probably one of the most impressive single incidents of the entire meeting. Not only in manner and in thought did he bring credit to himself but to the congress he brought a greater credit, through their wise selection of such a presiding officer.

The thought was most vividly brought home to the writer, that the dental profession needs more men of the same character, with broad vision, and a deeper insight into those things which raise humanity to a higher plane approaching the divine. And the dental profession *will* have them. Each succeeding year marks a rapid advancement, and it behooves its members to bestir themselves lest they fall behind. Again, the papers considered at the general sessions, with possibly one or two exceptions, evidenced careful thought and painful research on the part of their authors, and a wise selection on the part of the committee on essays. Of course these papers must be conceded to the real feast of congress, yet, nothing derogatory must be said of the work and the papers of the sections. One or two of them, it must be confessed, were found wanting, but the majority fulfilled the expectations of their leaders. Here again may be noted one of more distinct impressions, viz: that those sections were not neglected, in which the more abstruse and scientific subjects were discussed, unless the speakers were exceedingly wearying in thought and expression. These sections were well attended, and the interest manifested was one of the pleasant surprises of the meeting. It deeply impressed one that the average dentist has not received due credit for intelligence and a desire for scientific thought.

The sections, however, in which the more practical subjects were considered, received the greatest attention. In these, at times, the interest became exceedingly intense. Especially was this true of the section of materia medica and therapeutics in which the greatest interest was centered. As one viewed the large number who attended this section, and noted the eagerness of the listeners, when the subject of local anæsthesia was under discussion, he could not but feel that the deepest interest of the profession at this time is centered in this one subject.

The clinics also contained their impressive lesson. It was this: that no congress, or other meeting of dentists will achieve its greatest success without them. It is the practical points gathered at the clinics which makes the meeting valuable to the average dentist. Even if he learns little of practical value, he is able to return to his field of labor stimulated and encouraged by the knowledge that he is as good, possibly a little better, in his work than some other man of greater reputation. He puts new energy into his work. He permits himself to elevate his chin a trifle, when, perhaps, it had been sadly depressed on account of certain failures previous to his visit to the meeting.

Returning to impressions formed by individuals, the activity, energy, and unceasing efforts put forth by the officers of the congress to make this meeting the success it proved to be, excites the greatest admiration. To them, and to their Chicago colaborers is no praise too great, to which they are not entitled. Their work was carefully and thoroughly done, and no stone was too large for them to overturn in their efforts toward making this congress the greatest gathering of dentists this world has ever seen.

Not all the impressions formed have been pleasant ones, but these have faded into such indistinct lines, that they can scarcely be noted. They do not form the distinctive features of this mental composite photograph. After the retouching process only the most pleasant memories shall be retained, those least pleasant or unpleasant shall be completely erased.

CHICAGO.

"IMPRESSIONS."

MONTCLAIR, Sept. 18th, 1893.

To the Editor of the Dental Review:

DEAR SIR:—Your letter asking my impressions of the World's Columbian Dental Congress, for the October number of the DENTAL REVIEW, was received, and it gives me great pleasure to convey to you my "modest" opinion. Everything tended to make it a success. In the first place a wise judgment was used in the selection of an executive committee; second, the President, Secretary-General, and Treasurer were the right men, in the right place, and could not have been improved upon. Several of the general committees did their work conscientiously, and the local committees of arrangements and reception, were a crowning success. Our receptions at the club, and the grand introduction at Kinsley's made us all acquainted.

The happy introductions of the foreign delegates by our President, still further promoted the sociability of the occasion. Over eleven hundred delegates were present. One hundred and twenty-four foreign delegates, representing twenty-four nations. A half dozen of papers were being read at the same time in different sections.

Crowds attended the clinics, and a grand banquet at the Chicago Beach Hotel closed the grandest dental meeting, and the greatest dental educator that has ever been produced. These, my dear Dr. Harlan, are my honest impressions.

Hoping that the board of officers may live long to enjoy its happy memories, and reap the benefits of the long and arduous labors which they have endured.

Yours fraternally,

S. C. G. WATKINS.

"IMPRESSIONS".

To the Editors of the Dental Review:

DEAR SIR:—All my impresssions of the Columbian Denta Congress are pleasant ones. It was a grand success, not perfect in every respect—nothing human is—but whether considered from the social or scientific standpoint the great meeting must take its place as a standard by which and from which future gatherings must be fashioned.

Speaking of the work of the section of operative dentistry, of which I had a better opportunity to judge, I confess to a little disappointment. About half of the papers and discussions in this section were behind the times—the other half was not only abreast, but in advance, able, scientific and enthusiastic. A full measure of the work cannot be had until the printed proceedings are at hand.

That work of the section on prosthesis and orthodontia will prove a revelation, however, to those who were not present, far in advance of anything ever seen at a dental meeting before. The crowds that thronged the place of meeting fully attested the interest in this section and gratified the heart of the smiling chairman, while the section of chemistry could not hold a quorum for business.

In nothing was the wisdom of the executive committee so clearly and satisfactorily demonstrated as in eliminating all questions of a business character from general meetings. It was apparent to those in attendance that such a course was not only necessary but wise. We predict its hearty endorsement in the future by its general adoption in large scientific bodies.

The full measure of the work of the congress cannot be had until the printed proceedings are had, when words of commendation will be heard everywhere and much surprise expressed that such a volume of work should be accomplished in so short a time.

H. W. M.

"IMPRESSIONS."

To the Editor of the Dental Review:

DEAR SIR:—My first introduction was in the Dental Club, and it struck me as a wise and generous measure on the part of the executive committee to provide a place where all the members could meet,in an informal way to greet old and form new acquaintances. Having been in Chicago some days prior to the time for the meeting of the congress, attending other associations, I had gained some idea of what the general course of the congress would be, and looked forward with much interest to the auspicious opening of that august body, nor was I in any way disappointed in it. The address of Hon. C. C. Bonney, President of the World's Congress Auxiliary; the remarks of Dr. W. W. Walker, Chairman of the Executive Committee; the impromptu welcome by Dr. J. Y. Crawford (ever happy and ready on such occasions); the dignified and measured address of Dr. L. D. Shepard, President of the congress; the responses by the various foreign representatives all impressed me with the grandeur of the congress, and the wisdom of its inception.

The success of the opening seemed to assure that of the congress, and it was a success, a glorious success, one which the world has never witnessed before, but I trust will again in the future. The attendance the first day was not as large as I had anticipated; this I attributed to the general feeling that the commencement would be devoted to organization, but as the succeeding days did not witness a greatly increased membership, I was forced to the conclusion that other causes, mainly the financial condition of the country, must account for my expectations not being realized.

Had not the money troubles been so wide-spread and disastrous, probably twenty-five, perhaps fifty per cent more would have been present. Was I disappointed in anything? Yes! I do not think the clinics were as well arranged as they might have been. They were too crowded, and many could not see anything, personally. I was not benefited by the practical work. Again I was disappointed in the arrangement of the sections. This was probably my own fault as I had not expected such a general division. Not being ubiquitous I lost much that I wished to hear. As I attended the congress entirely for education, having nothing to impart, I could not but feel that I would have gained more, had the sections not been so separated. I am selfish you see, and while not wishing to criticise look upon this from a personal standpoint.

Large bodies are hard to handle, and probably the arrangement was the best that could have been made in the limited time the congress had to complete its work. Had I been one of the executive committee, I probably could not have suggested anything better, though I might have regretted the necessity of the arrangement. In regard to the social feature there was certainly nothing to complain of. If any one who attended the congress did not have a good time it was their own fault, or they were very unfortunate. I do not allude to those on whom the labors of the congress fell, for they had their hands full, and their enjoyment must consist in the satisfaction derived from the knowledge that they contributed largely to the glowing results. To those members of the profession in Chicago connected with the congress, the profession at large should feel a deep debt of gratitude, for they were untiring in their efforts to give their visiting brothers a royal welcome, and nothing was left undone that could contribute to their intellectual and physical enjoyment, and in the language of one of our foreign representatives, hurrah! hurrah!! hurrah!!!

Yours truly, FRANCIS PEABODY.

"IMPRESSIONS."

To the Editor of The Dental Review:

DEAR SIR:—At the World's Columbian Dental Congress I was most impressed by the magnitude of the undertaking and the prompt, business-like manner in which the meetings were conducted. It was the largest dental meeting ever held, and the difficulties to be overcome by the executive officers can best be appreciated by those who have occupied similar positions in smaller bodies.

The clinics were a disappointment to many; that the room was inadequate to the demands of the occasion is a criticism that must be admitted, but I think the difficulty lies more in the manner in which clinics are usually given. It is not reasonable to suppose that several hundred persons can see the details of an operation upon a patient in the chair requiring an hour or more, but if each step of the operation is shown upon natural teeth mounted in dummies or models, completing with the finished operation in the mouth of a patient, if it cannot be so perfectly shown by models, then all can pass in turn, see the operation in its various stages and hear the operator's explanation of the principles involved. Such a plan has been followed a number of times and I wonder that it does not receive more encouragement from the managers of clinics.

Many of your readers will recall the very instructive clinic given in this manner by Dr. Thos. L. Gilmer, at Springfield, Ill., in May, 1892. However, the clinic at Chicago, with all its faults, did much good, probably not the least in that it brought many together informally where they could exchange ideas and compare notes. I believe that the greatest benefit to the majority in attendance was derived from social intercourse, many absenting themselves from the meetings, preferring to wait for the published report of the papers and discussions.

Being busy with committee work, I was unable to follow the proceedings of the meetings, so I will not attempt to pass judgment upon the excellence of the essays, but I will tell you of a new association which was conceived and had its birth during the last session of Section 6, which will be known as "The Association of Teachers of Operative and Prosthetic Technics."

There were some half-dozen colleges represented, and as was fitting, Dr. D. M. Cattell, the pioneer in this class of teaching, was elected President. After agreeing that each teacher present should furnish the others with a syllabus of the work as presented by himself, the association adjourned to meet at Old Point Comfort, in conjunction with the American Dental Association, at which time a constitution will be adopted. It is hoped that every teacher of technics in the United States, will join the association at that time. A probable feature of this meeting will be an exhibit of the work in this line accomplished by students of the several colleges, as it is recognized that such an exhibit would be invaluable, not only to teachers of technics, but to all who are interested in educational matters.

My hobby seems to have carried me out of sight of the W. C. D. C., but I will now dismount, and close by saying that I am glad I was there, the influence was good, and I think that having complimented the general executive committee and the executive officers, I can pay the dentists of Chicago, who were so indefatigable in their efforts for the success of the congress, no higher compliment than by saying that they discharged their duties as hosts in the same broad spirit and perfection of results, as shown by the management which, in two years, reared upon a swamp "the great white city by the sea."

Long live Chicago and its generous, genial and progressive dentists. Yours fraternally,

THOMAS E. WEEKS,
Minneapolis, Minn.

"IMPRESSIONS."

To the Editor of the Dental Review:

DEAR SIR:—I have not been able to formulate satisfactorily any opinions I might hold regarding the Columbian Dental Congress. It was in many respects a great dental meeting, being especially a success from a social standpoint, and the extensive foreign representation must have been exceedingly flattering to the executive committee. In other respects the meeting did not reach our expectations. The mid-day sessions were not satisfactory from the fact that a free and extensive discussion was prevented. I do not believe that a dental meeting can be conducted with the highest interest to all when worked in sections. There are a great many persons who could offer a most valuable discussion to a paper under one department if they could be present at the reading, but who are detained in another section listening to a paper of greater personal interest. If the general session had been longer and each paper opened to free discussion, the congress might have been of greater value to science. There is also a feeling that I share with others, that the principal officers of the committees were not in sympathy with the members of the congress at large; at least the various rulings gave one such an impression. A more liberal recognition of merit by the general committee instead of burdening a few with all the honorable offices, would probably have developed a higher quality of material and discussion. So far as I am concerned, I enjoyed the meeting exceedingly, and feel that my time could not have been better spent. I also extend congratulations to the committees who labored so faithfully to organize the largest dental meeting in the history of the world.

I am very sincerely yours,

GRANT MOLYNEAUX.

REVIEWS AND ABSTRACTS.

A SHORT BIOGRAPHY OF DR. KISAI TAKAYAMA, OF TOKIO, JAPAN.

Dr. Kisai Takayama is the most famous dentist in Japan. It is indeed to him that we owe the present development and prosperity of the profession of dentistry, and he is therefore most deserving of our esteem, as the "Father of American dentistry in our country." I have ventured to write a short sketch of his life, in order to encourage other hard working students, and to preserve the memory of his early struggles.

Kisai Takayama was born in Okayama, in December of the third year of Kayei (1849). In his early youth he bore the name of Yataro, and afterward that of Kisai.

As he was a *Samurai* (same as knight), by birth, he was carefully taught in both Japanese and European military tactics in his youth, and afterward he studied Chinese and English in the Okayama Gakko (a school established by the Okayama-han), and soon became well versed in these languages.

Marquis Ikeda, Feudal Lord of Okayama wished him to become a teacher in the Okayama Gwaikokugo Gakko, (a school in which English was taught), but he was far too ambitious to consent to spend his life in teaching.

He was now twenty-two years old, and his ardent desire for learning impelled him to leave his home. So he begged his lord to give him permission to leave his native province and go to Yedo.

According to the laws of the *Han* (same as clan), it was very difficult to leave the school in the middle of the year of study. But his lord had been much pleased with his ability, and finally granted him permission to study in Yeddo at the public expense.

It was a special farm for one of his clan, so that he was greatly envied by other students. He started, therefore, secretly for Yeddo, in November of the second year of Meiji (1868). After his arrival at Tokio, he attended the Keio Gijiku (Fukuzawa's school), and studied English with great zeal. At this time Marquis Ikeda planned to permit the best students among his clansmen to study in foreign countries at the public expense.

Kisai Takayama was selected as one of these, and he determined to go to America in the next year, so he applied himself to his studies with greater eagerness than ever. Suddenly a new law was issued by the department of education, and the plan of Marquis Ikeda was finally given up. How sorry and disappointed he was! It did not however prevent him from longing for an opportunity to go abroad. About that time his father endeavored to persuade him to go back to his native province, and become a teacher in the Okayama Gakko. Writing a letter in reply to his father, he said: "My studies are not yet complete, it would be shameful for me to go home without having achieved any success. I wish to go to America, please permit me to be absent three years." His father at last granted his wish and gave him a sum of money. He was very glad, and in January of the fifth year of Meiji (1872), he started for San Francisco, U. S. A.

Having arrived at San Francisco, he firstly attended Miss I. Prince's home institute, and was kindly educated there. And he also carefully observed the customs, and manners, and investigated the causes of the civilization he saw about him. Noticing that in America, dentistry was greatly developed, while in Japan it was in a most degraded state, he thought it would be both useful and advisable to become a dentist himself. So he sought for some famous dentist to be his instructor. Through the introduction of a certain gentleman he called on Dr. Vandenburg, then at the head of his profession in San Francisco, and was fortunately permitted to become one of his pupils.

At this date dentistry was despised as one of the lowest employments in Japan, but Kisai Takayama thought that in the future it would be considered as of more value and he pursued his studies with all his might. Oh! how clear-sighted he was!

Seven years quickly passed, and he had become very skillful in his profession; he therefore bade farewell to his instructor, and departed from San Francisco. In April of the 11th year of Meiji (1878), he returned to Japan by the way of Europe.

At that time foreign intercourse with Japan was not so flourishing as at present, and there were very few Japanese in America. Nevertheless, Takayama studied without any assistance in his expenses during several years in that distant country. How many hard troubles he had during that time! I can scarcely imagine his poverty and anxiety!

It is not unreasonable that he is now considered as the most prominent man in the dental profession in Japan.

On his return to his native country he opened a dental office at once in Tokio, upon the principal street, called the Ginza, and there established himself, but before entering upon the duties of his profession, he visited his old parents in Okayama, and brought great joy to their hearts.

Previous to this period a few dentists had been educated in some European ideas, but their practice was too limited for them to make much use of dental science, and our people were ignorant of the necessity of caring for, or of preserving the teeth. Consequently it was very difficult for the public to appreciate Dr. Takayama's knowledge of, and skill in American dentistry. But he struggled against this difficulty, and from the commencement of his business, he relieved many thousands of patients by his skillful operations; thus his fame has increased more and more, and now he is honored as the first among all Japanese dentists.

In the twentieth year of Meiji (1887), His Imperial Highness, the Heir Apparent, Prince Haru, was afflicted by the tooth-ache and Dr. Takayama was requested to cure him. The doctor immediately accepted the duty, feeling that there was no greater honor for him than, by an effectual treatment to relieve the suffering of the prince, and thus remove the anxiety of both their Imperial Majesties, the emperor and the empress, so he hastened to the imperial palace and applied his skill upon the diseased tooth of the little prince; and in a few moments he was greatly relieved from his pain.

Not long afterward when Her Imperial Majesty, the empress, suffered from the same malady, he again had the honor of being summoned to the palace, and was equally successful.

These events not only added much to his reputation, but also increased the credit of the dental profession in Japan. The next year (1888), Dr. Takayama was appointed the surgeon dentist of the imperial household department, and soon after was granted the dignity of Jurokui. This appointment may undoubtedly be ascribed to his skill. Afterward he was appointed one on the committee for medical examination at the home department, and since then all the examinations in regard to dentistry have been undertaken by him. He was also placed on the committee for the Third National Industrial Exhibition.

In the twenty-fifth year of Meiji (1892), a few days before the opening of the fourth session of the Imperial Diet, Count Ito, the present premier, was severely wounded in his mouth, by an accident. Several of his front teeth were broken, the gums deeply cut, and he was thrown into agonies of pain. Dr. Takayama was immediately sent for, but as it was the day of the funeral obsequies of his grandmother, he was compelled to decline.

Obliged, however, by the premier's repeated requests, he went to the official residence in the middle of the night, to apply healing applications to the wound. After the lapse of a few days, the wound began to heal, and the count retired to his country seat for the recovery of his health.

About this time a collision occurred between the government and the diet, and political circumstances did not permit the premier to remain longer in the country, so he returned to the city in spite of his illness. As several of his front teeth were destroyed by the accident it was very difficult for the premier to speak distinctly; yet it was necessary for him to speak in a few days before the diet in defense of the government. He, therefore, wished Dr. Takayama to at once insert artificial teeth. The doctor advised him to postpone this operation until the wound was quite healed, lest the pain would be too great. But Count Ito is not a man to sacrifice public interests to private affairs. Urged by his impatience the doctor in a few hours inserted artificial teeth. This was on the 6th of January. On the following day, Count Ito appeared before the diet and delivered a brilliant address without any difficulty in articulation.

This was a great triumph of Dr. Takayama's proficiency in dentistry. Almost every newspaper in the empire related the affair in its columns, and his success was applauded in warm terms.

In May, of this year, Dr. Takayama was appointed the Councilor of Japanese Commission for the World's Columbian Exposition, and he is now preparing to go to America.

Since Dr. Takayama commenced the practice of his profession in Tokio, many young men, anxious to study dentistry, have been coming to receive his instructions, and he has kindly taught them. Observing that the knowledge of dentistry in our country was yet in its infancy, he attributed it to the deficiency of books relating to dentistry, and to the fact that it needed some special teaching, and he thought it of pressing importance to undertake its progress.

Moved by this idea, in January of the 23d year of Meiji (1890), by expending a large sum of money, he established "Takayama's Dental College, at Shiba, Isarago, it being the first dental school ever opened in our country. He was appointed its President, and since that time has constantly assisted its other excellent teachers by courses of lectures upon dentistry, until it has attained its present prosperous condition. Although a new school, its students now number over one hundred.

As many provincial students cannot attend the school regularly, Dr. Takayama edits a magazine on dental science in order to facilitate their studies, and the number of these special students has reached 250. Since the opening of the "college" the number of its graduates who have passed the medical examination of the "home department" is thirty-eight. Some of them are now engaged in professional work, and some are still pursuing their studies in the college.

In addition to these severe works, Dr. Takayama has written many text-books for the use of his pupils.

Among them the following are the most remarkable: Daigotsui Shin Kei Kaibo Hen (the anatomy of the fifth pair of nerves), Shikwa Shijutsu Ron (operative dentistry), Shikwa Kikaigaku (dental mechanics), Shikwa Han Ron (general principles of dentistry), and Shikwa Yakingaku (dental metallurgy). These books are very popular among the profession.

Besides these there are: Hoshi-Shin Ron (preservation of the teeth), Yei Sei Hoshi Mondo (questions and answers on the health of the teeth), and others too numerous to mention.

The foregoing is only a brief account of his past career. Before we close, a word or two of his personal appearance and his character.

In person he is graceful, in action prudent, in ability clever, in intercourse with others affable, kind to acquaintances and full of public spirit.

He is indeed the idol of the profession, and we may venture to say that his reputation will not be confined only to his professional friends, but that he will in future be as highly esteemed by the general public as he is by those who can best appreciate his skill in his chosen profession.

[This very interesting account of the life of Takayama is reprinted because it is so refreshing. EDITOR.]

PAMPHLETS RECEIVED.

MEMORIAL WITH PORTRAIT OF THE LATE DR. THOMAS, PARIS, FRANCE.

CARE OF THE TEETH, by Arthur Holbrook, D. D. S., Milwaukee, Wis., 3d edition. Pp. 22. For general distribution.

PRACTICAL NOTES.

AN INTERESTING CASE.

About seven and a half years ago, Dr. S. G. Perry, of New York, implanted a right superior lateral incisor, which was lost by absorption of the root eighteen months later; a new tooth was obtained and the operation repeated. This tooth was also lost from absorption after about three year's use. A satisfactory *tooth* not being obtainable, a lateral root was prepared, and an artificial crown with band was mounted upon it, the socket deepened and root and crown secured in situ.

Nearly three years after the last operation the patient (who kindly furnished me with the history of the case) presented herself to me for treatment, the porcelain face having broken off; this I replaced, and to all appearances the root bid fair to last many years more. Three things that impressed me in connection with this case was the enthusiastic persistence of Dr. Perry which was so happily successful; the nonabsorption of the gum about the tooth, the gingival margin maintaining its natural position, and thereby covering the gold band; also the perfect immobility of the tooth, it evidently being a case of true anchylosis, it being absolutely immovable.

W. MITCHELL,
London, England.

MEMORANDA.

Dr. J. E. Grevers, has returned to Amsterdam.

Dr. Peach, of Sydney, N. S. Wales, is in Chicago.

Dr. C. D. Cook, of Brooklyn, was in Chicago recently.

Dr. Geo. Cunningham sailed for England September 20.

Izal is the newest antiseptic endorsed by E. Klein, of London, England.

Drs. Wm. Mitchell, E. C. Clarke and Chas. Rathbun have returned to England.

Nearly one thousand dentists visited Chicago from September 1st, to October 5th.

The Central Dental Association of Northern New Jersey, will begin the fall campaign October 16th.

Dr. Fritz W. Huxmann, of Chicago, has been appointed a member of the Illinois State Board of Dental Examiners.

The dentists of this great country are coming to the World's Fair in great numbers, and will continue for the balance of the season.

Dr. J. L. Secher the versatile representative from Denmark has gone home full of new ideas of America and the World's Fair City.

Dr. Filaker, the eminent anthropologist and entomologist, has returned to Samoa from the congress. It is regretted that he did not arrive early enough to participate in the sessions.

NORTHERN ILLINOIS DENTAL SOCIETY.

The meeting has been postponed until October, 1894, in Aurora, Ill.

H. R. STALEY, Chairman of the Executive Committee.

ASSOCIATION OF TEACHERS OF OPERATIVE AND PROSTHETIC TECHNICS.

D. M. Cattell, President; J. A. Daly, Secretary. All teachers connected with schools belonging to the National Association of Dental Faculties are eligible to membership. The next meeting will be held subject to the call of the President.

Some time ago a powerful negro presented himself to a dentist for treatment for an aching tooth. The prospect of relief seemed to cause a subsidence of his courage ; he admonished the dentist "to be very careful as he had a powerful weak jaw, and s-s-say, boss, hev yer got any dis yere *pulverized air* as yer could give me, so as I couldn't feel it ?'

MINNESOTA STATE DENTAL SOCIETY.

The following officers were elected for the ensuing year: President, C. H. Steasns, Zumbrota, Minn.; Vice President, I. C. St. John, Minneapolis, Minn.; Secretary, C. W. Jones, St. Paul, Minn.; Treasurer, H. M. Reid, Minneapolis, Minn. Next place of meeting Minneapolis, first week in September, 1894.

GERMAN DENTISTS ORGANIZE.

The German dentists of the city met last night in the office of the German-American Dental college in the Schiller building and organized the Zahnaerztliche Verein, of Chicago. A constitution and by-laws were adopted and the following officers elected: President, Dr. F. W. Huxmann; Recording Secretary, Dr. T. Schnitker; Corresponding Secretary, Dr. William Rosenthal; Treasurer, Dr. Ernst Plennig. The next meeting will be held at the same place Oct. 2, when Dr. Huxmann will read a paper on porcelain work.

LOCAL ANÆSTHETIC.

Menthol	2 parts.
Ether	15 parts.
Chloroform	100 parts.

M. Sig. for injection or used on a cotton rope around a tooth. Sometimes I have used it before removing deposits from the roots of teeth. Another good one is :

Tinct. cannabis indica	2 parts.
Oil cassia	1 part.
Acid carbolic	3 parts.
Alcohol	5 parts.

M. Sig. use as above.

THE MISSOURI STATE DENTAL ASSOCIATION.

The twenty-ninth annual meeting of the Missouri State Dental Association, was held at Excelsior Springs, Mo., July 11th, 12th, 13th, and 14th. The following officers were elected for the ensuing year :

President—Dr. W. E. Tucker, Springfield, Mo.
First Vice President—Dr. J. T. Fry, Moberly, Mo.
Second Vice President—Dr. Chas. L. Hungerford, Kansas City, Mo.
Corresponding Secretary—Dr. Wm. Conrad, St. Louis, Mo.
Recording Secretary—Dr. S. C. A. Rubey, Clinton, Mo.
Treasurer—James A. Price, Weston, Mo.

Committee on Ethics—Dr. Frank Slater, Rich Hill, Mo.; Dr. W. N. Morrison, St. Louis, Mo.; Dr. C. L. Hungerford, Kansas City, Mo.

Board of Censors—Dr. E. E. Shattuck, Kansas City, Mo.; Dr. H. A. Cress, Warrensburg, Mo.; Dr. E. B. Crane, California, Mo.

Committee on Law—Dr. Jas. A. Price, Weston, Mo.

Committee on New Appliances—Dr. J. G. Harper, St. Louis, Mo.

The next meeting of this association will be held at Excelsior Springs, Mo., on the first Tuesday after July 4th, 1894.

Wm. Conrad, Corresponding Secretary,
St. Louis, Mo.

DR. L. C. BRYAN'S CLINIC AT THE DENTAL CONGRESS.

The operation required only a few minutes and as only a few saw it, herewith is a description by the author:

The patient, a fifteen-year-old girl, had a right superior lateral incisor locking in behind the lower incisors and had space between the central and cuspid for immediate regulation.

Cocaine was injected and with a small circular saw, a perpendicular incision was made through the gum and half through the alveolar septum on both sides of the root of the lateral from the apex of the root to the crown of the tooth.

The three-inch flat steel guard, lined on the gum side with rubber $\frac{1}{16}$-inch thick, was fitted to the curve of the gum and formed a rest for the long, round front beak of the forceps, and the other beak rested against the distal wall of the lateral up to the gum, with slight pressure the connection of the tooth with the distal alveolar wall was severed and the tooth came easily forward to its place in the arch in front of the lower teeth--bringing with it the front wall of alveolus firmly attached to the root and ready to heal quickly and reunite with the neighboring borders of alveolus. The apex of the root was not disturbed in its position, and the nerve will be found intact as will always be the case if the operation is correctly and carefully performed.

Cocaine is much better than a general anæsthetic, as patients are very likely to move slightly under general anæsthetics, and accidents to occur.

The patient's face was slightly swollen for a few hours from the injection of the cocaine, but had no other pain than a soreness in the tooth. As the tooth was somewhat short and did not lock over the inferior incisors and showed a tendency to go back it was ligated with silk the day after the operation.

Dr. Bryan formerly lifted the front alveolar wall away from the tooth before operating, but prefers to saw in as above, as results are better than when breaking up the alveolar wall. The operation is also much simplified and less inflammation supervenes. The witnesses of the operation congratulated the operator on his success in doing, painlessly, what often takes many days or weeks and puts the patient to much inconvenience and pain.

Dr. Bryan's operation is described and illustrated in *Catching's Compendium for 1892*.

I also showed on Tuesday a number of very finely-worked pieces of prosthetic dentistry, including gold plates with natural teeth and hippapotamus carved teeth set on with pivots; tube teeth on gold plates; an obturator in rubber with gold springs and cunningly devised parts—a beautiful piece of workmanship;

a fixture to cure stuttering, and other interesting cases which had been in actual use, all made by Dr. P. A. Koelliker, of Zurich, Switzerland, whose name I should like to have mentioned in this connection.

I also had a case of nineteen sizes of seamless gold crowns for molars in pairs, one of which telescoped over the other, fittingly perfectly for use as removable bridge anchors, made by Dr. Bieber, of Pfortzheim, in Baden, Germany.

Also specimens of carved ivory sets—teeth and plates carved of one piece, lent by Dr. Wellauer, of Basel.

I also showed a very curious old double set on gold (made in pairs sixty years ago) held together by springs and holding blocks of carved ivory badly decayed with use and showing the same process of caries as in dentine; natural teeth mounted on pins—old front teeth with a groove at the back and three short pins bent over the wire backing which lay in the groove and soldered to it.

L. C. B.

THE DENTISTS.

The Tri-City Dental Association convened at the Keator House parlors last evening in regular monthly session. This Society, which is composed of the leading dentists of the cities of Davenport, Rock Island, and Moline, was organized one year ago. Dr. Baker, President of the association showed wherein they had, in so short a time, made a most elegant showing in the way of mutual advancement, professional courtesy, etc. The election of officers resulted as follows :

President—Dr. W. T. Magill, Rock Island.
Vice President—Dr. E. T. Rigby, Davenport.
Secretary—Dr. R. M. Pearce, Rock Island.
Treasurer—Dr. L. W. Skidmore, Moline.

Dr. J. W. Gleusing, Dr. Pape, and Dr. Williams constitute the Board of Directors. The next regular meeting will take place at Davenport.

OBITUARY.

DR. GEO. W. McELHANEY.

From a note in the *Dental Headlight*, we learn that Dr. Geo. W. McElhaney is no more. Dr. McElhaney was a member of the executive committee of the World's Columbian Dental Congress, appointed from the American Dental Association. He was at one time Vice President of the above association, and for many years had been an honored and respected practitioner of Georgia. He was present in Chicago, and took part as a listener in the congress. He was of a modest and retiring disposition, but firm in his opposition to all forms of insincerity. He was a most excellent counselor, and steadfast in his friendship. The writer long knew him, and respected him for his sterling character and integrity. He left a widow but no children, and to her in her bereavement we extend our heartfelt sympathy.

"Soft may his body rest
As on his mother's breast,
Whose love stands all confessed
  'Mid blinding tears;
But may his soul so white,
Rise in triumphant flight,
And in God's land of light
  Spend endless years."

THE

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"NO AMERICAN NEED APPLY." WHY?

BY WILLIAM H. TRUEMAN, D. D. S., PHILADELPHIA, PA.

The subject of the opening paragraph of the editorial in the August number of the DENTAL REVIEW (Vol. VII., 1893, page 692), deserves more than a passing notice. Assuming the statements therein made to be correct, it may, perhaps, tend to a better understanding of the matter to consider, dispassionately, the causes that have led, or that may be leading, to the exclusion from foreign countries of Americans desiring to practice dentistry.

If this exclusion is alone based upon the desire to shut out competition, it is certainly no discredit to the foreign countries adopting it, and equally no reflection upon our system of dental education. We, as Americans, have no reason to complain. It is no more, indeed, than the application and adoption of a national policy, that of protection to home industries, which the United States has always adhered to, and to which it owes much of its prosperity.

As long ago as 1867, a friend and classmate of mine was refused the right to practice dentistry in a town of Switzerland. He was told when he applied to the authorities for the required permission, that a few years before they would have been very glad to have had a well-qualified dentist settle in their midst, but that at that time, several young men, natives of the town, were practicing dentistry, after having, at a large expense, qualified themselves therefor by study abroad, and it would be, they felt, an injustice to them to encourage foreign competitors. We see in this incident, I think, the key to the whole matter. There was a time when the American dentist was welcome anywhere and everywhere. He introduced a new industry, or so many improvements upon an old one, that he was welcome to the people who needed his service and equally so to his professional brethren, who found in him an instructor fully equipped and ever ready to communicate.

To the exclusiveness of the old world he was a stranger. His value as an instructor was evidently appreciated by our British brethren, when in reorganizing their profession in 1878, "for the time being," they decided to recognize the diplomas of two American dental colleges.* This incident is significant when it is remembered that it was done on the representations of British dentists, and that no British subject intending to enter the dental profession could take advantage of it.

Within a comparatively recent period two events have occurred, each having, no doubt, a bearing upon this matter. First, the name "American dentist,'' has become the trademark of quacks and charlatans; another instance added to the many, where "the livery of heaven has been stolen to serve the devil in." A second and more important factor is, however, that the American dentist has lost much of his former usefulness to our friends abroad. Largely through his influence foreign dentistry has reached a higher development; natives of these foreign countries have become earnest and apt dental students. They have learned of their American brother many of his practical ways. They have organized, and well organized too, dental colleges of their own, in their own native lands. They have so well learned from him his practical lessons, that being now prepared to teach they feel able to "go it alone."

Now, is it not natural, right, proper and just, for any country that has within its borders organized schools where dentistry is taught, schools which have adopted a curriculum satisfactory to the powers that be, the said schools depending largely upon native students for support, to so frame their laws as to encourage, or if need be to compel those desiring to qualify for the practice of dentistry in their midst to patronize them? Patriotism certainly suggests this. American dental colleges have so long had the whole world for their parish, and homage to (so-called) American dentistry has been so general, that it may be to each a rude awakening to find that there are other Richmonds in the field, Richmonds, too, that are likely to stay. We are thus reminded that the world moves.

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*See the report of the General Medical Council, England. The Journal of the British Dental Association, Vol. XIV., (June 15th, 1893), page 428. Also British Journal of Dental Science, Vol. XXXVI., June 15th, 1893, page 562.

We thus see that the seed sown by the pioneers who inaugurated a new order of things in dental education at Baltimore in 1839, has been scattered far and wide. That which fell upon a sterile soil and has long lain dormant is beginning to grow, and is likely to produce upon far distant shores abundant fruit. What if it should seem like bread cast upon the waters? Why complain? Let us have faith in the promise that in due time it will return unto us again. In the meantime, what matter if it does seem like a little loss of prestige, a little curtailment of business opportunities, are we not a *liberal* profession? Are we not devoted *solely* to the relief of suffering humanity? Is not this action of these foreign countries an official recognition of the value of an educated dentist's services? Let us therefore rejoice and be glad, in that our beloved profession has thus won for itself so prominent a place among peoples that were but a few years ago dental missionary grounds, where the fields were white unto the harvest, and the educated laborers few and far between.

I am firmly impressed that with this exclusion our system of education has absolutely nothing to do. Within a few days, in conversation with an American dentist long resident in Paris, I was informed that throughout continental Europe there has been growing gradually of late a less cordial feeling toward foreign residents, especially those engaged in business, not, however, particularly directed toward Americans. This less cordial feeling toward foreigners is not, however, confined to Europe. It is also present here in the United States. Our far-seeing statesmen are regarding with anxious thought this question of restricting immigration, and it seems to be generally admitted that in the near future the national legislator will be compelled to take action upon it. With us at present, so far as the question has developed, we have excluded *absolutely* the more humble subjects of a single nationality only. The idea more generally advanced seems to be, to at first restrict the immigration of the so-called lower or laboring classes; simply from the fact that with us at present their competition is more markedly felt. But once any nation begins to close its doors to those from other nations whose labor conflicts with native labor, rest assured that if the restriction proves to be profitable and politic, it will be applied to any and every calling where the competition exists. These class distinctions are purely artificial; any and every one belongs to the working classes who is leading a useful life, whether wielding a spade, a pen, or a plugger; by brawn or brain.

The writer of the editorial referred to suggests "our faulty system of education" as a possible cause of this exclusion.

Now, what is the matter with our system of dental education, I would like to know? I do not agree with the writer of the much discussed circular issued by the World's Congress Auxiliary of the World's Columbian Exposition when he says "that the history of modern dentistry is covered by two generations;" nor yet when he asserts that "scientific dentistry had its birth in the United States of America." He was certainly misinformed, or was indulging in a little questionable "spread eagleism." I take it that scientific medicine and scientific dentistry are twins; born of humanity's needs; they have been nurtured by all civilized races, and in all climes; the land of their birth, however, it would be difficult at this time to determine. There was, however, inaugurated at Baltimore in 1839, by the organization of a distinct dental college, a new system of dental education that was preëminently American, in that it was preëminently practical. It was really a manual training school, whose scholars were taught the art of dentistry and all that rightly pertains to it. The making of and the use of instruments and appliances used in dental surgery were, in its work shops and operating rooms, practically and systematically taught. This system of dental education, having for its object, and its only object, the making of skillful, practical dentists, commenced in Baltimore in 1839, has been, in every reputable American dental college since organized, adopted, developed and improved, so that it has come to be known as the "American System of Dental Education." Its practical advantages over the older methods then in vogue, were so quickly recognized that within a decade the fame of American dentists began to be world wide, and in consequence American dental colleges soon drew students from every civilized nation of the globe.

Now, what was the matter with this system? Can we justly call a system faulty that produces so astounding a result?

The practical success of this system has caused its adoption in whole or in part in perhaps every institution where dentistry is taught. There has, since 1839, been a mighty shaking up of dry bones in the old educational centers of Europe in consequence of this innovation, and in their midst excellent schools have been organized, either as distinct dental schools or in connection with medical institutions. As yet they seem to be, to use a familiar American phrase, "new industries that need government protection from foreign competitors."

Their course of instruction, particularly that of our British brethren, seems to be unnecessarily cumbersome, in that they require a great deal that is not now, and is not likely to be to the average dentist, of the slightest practical value, making the prescribed course inordinately expensive and time-wasting, without adding any corresponding advantage. The only real test of any system of instruction is the result. The real value is not in the cash it costs, nor yet in the time consumed, as the writer of the remarks attached to the memorial sent in to the General Medical Council of England, May 29, 1893, seems to assume; nor yet in the multiplicity of studies imposed. The real practical question is, which system produces the best dentists?

Theoretically, a man thoroughly educated, one who has successfully passed the course of studies embraced by the curriculum of a well-appointed college, should make the most promising dental student. That is the ideal toward which the profession seems to be urged. If I understand the question at issue, the supposed faulty part of our dental educational system, is in that the American dental colleges do not demand this preliminary education to so great a degree as do those of some other countries.

Now comes the question. Is the theory correct? Have those who, preliminary to entering upon a course of dental instruction, have graduated from a literary college made the best students? Have they, after their professional graduation, made the most skillful dentists? Have they shown their superiority by better work for their patients? Has their greater intellectual attainments made them more useful in advancing professional knowledge, and made them more helpful to their professional brethren? This is the real practical test.

Without further enlarging upon this, which is merely incidental to the subject under discussion, permit me to say: So long as I find that to the ingenuity and skill of dentists educated in American dental colleges, we, as a profession, are so largely indebted for the most useful of our labor-saving appliances, improved instruments, more successful methods of operating and best examples of individual manipulative ability; so long as the graduates of American dental colleges continue to be so pronounced a factor, as they have been, in the marvelous advance of dental science in all its departments; so long as they hold their own so nobly as they now do, as successful and useful original investigators, so long will I most earnestly contend that the colleges and the system of education in vogue therein which has made these men what they are, cannot justly be disparaged by Medical Councils, Dental Societies, or State Dental Examining Boards.

From the fact that the dental journals of Great Britain so largely depend upon writers who are graduates of American colleges, and the further fact that the graduates of the English system, so far, show no evidence that they are to any appreciable extent supplanting their American brethren as leaders of dental thought, I am impressed that a system of dental education in which the students are selected, the course of studies prescribed, and qualifications passed upon by a medical council containing not a single dental practitioner, is not proving so great an improvement that we need hasten to adopt it.

It needs no "reading between the lines," however, to plainly see that the reflections upon the American system of education in the memorial presented to the Medical Council of England and the discussion thereon, were a mere palaver. The resolve to refuse registration to the diplomas of Harvard and Michigan Universities was a simple act of justice, too long delayed. They were in a dilemma, they had to either refuse all or admit all; it was a simple business proposition—they had to either shut off this foreign competition or let their own colleges go to the wall, and they chose the wiser course.

The whole matter the world over is simply one of business. It is being considered by business men, from a business standpoint, and will be settled on business principles. Business is business—we may denominate our calling "sacred," as does the divine, or contend that *ours* is a highly exalted liberal profession; it is nevertheless a part and parcel of the world's business, resolutions of the dental societies to the contrary notwithstanding.

A STUDY OF THE MASTICATING FORCE OF THE JAWS.*

BY GEO. J. DENNIS, M. D., D. D. S., Chicago, Ill.

In this study of the masticating force of the jaws, no attempt will be made to enter into a detailed description of the masticatory apparatus of the jaws or of the movements of this apparatus, but to present as briefly and concisely as possible some facts which it is believed will throw light upon an entirely unknown subject.

By way of preface, and of apology as well, the writer requests your forbearance in the relation of the difficulties encountered by him which prevented the successful presentation of certain information which was sought at the beginning of these investigations.

The original intention of the paper was that of bringing to the dental profession some accurate knowledge in regard to the strains, direct and otherwise, which were borne by the teeth, and more especially when artificial substitutes, such as crowns, bridges, and appliances of like nature have been placed in the mouth. In the case of bridge work the amount of strain each would bear was sought, whether there would be any deflection of the center or extremities of the bridges from the pressure of mastication, whether the bending, if any, of the superstructure, would have any effect upon the substructure, whether there would be any movement of the abutments in their deeper foundations, and if such movement existed, the calculation of the amount of movement, as well as the strains, and the deflections to which bridges might be subjected under the existing conditions, in the mouth, was confidently expected. In this study it was hoped that some scientific knowledge might be gained of the stableness or unstableness of bridge work, judged entirely from the mechanical standpoint. The subject was thoroughly investigated. Competent civil and mechanical engineers were consulted, and the problem was presented to them as clearly as possible. The result, however, was a great disappointment, as each one acknowledged that the solution of the problem was one entirely beyond him.

The reasons given by these engineers for their inability to throw any light on the subject, were as follows, if a slight digression may be permitted.

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*Read before the World's Columbian Dental Congress August, 1893.

1st. The material (gold) used by dentists in the formation of the superstructure of their bridges, was one of which absolutely nothing was known concerning the resistance to strain, either direct or tortional. Its elastic qualities were also unknown quantities. This in itself did not present an insurmountable obstacle, as tests of the material could be easily made.

2d. Given a knowledge of the points in regard to the material for the superstructure, the problem became a still more unsolvable one when the size and shape of the beam in this superstructure was considered. The supporting beam in dental bridges is one of constantly varying size and shape, so that there could be no calculation made, in the same manner as with a square or triangular or even rectangular beam of even size and shape throughout.

3d. The varying density of the material of this superstructure, composed, as it usually is, of two, three and four grades of gold, presented a combination upon which no calculations could be based.

4th. The method of attachment of the superstructure to its abutments was another unknown factor, and one incapable of solution, for it is self-evident that the strength of this attachment must vary extensively with the peculiar conditions present in each individual case.

5th. The strength of the substructure was one of such great variability that nothing could be determined in regard to it.

Previous to the attainment of this knowledge of the difficulties in the way of the scientific study of the strains, resistances and deflections of bridge work, the writer had under construction an instrument designed to contribute to a solution of the problem under consideration, by giving accurate information upon the amount of force exerted by the maxillary muscles in the closure of the jaws, one upon the other. No information had ever been given us in regard to this force, and it was with the intention of presenting some facts in regard to this matter that this paper has been prepared. Indeed, Prof. Black, so recently as the last meeting of the Illinois State Dental Society, held in May of this year, and in an article entitled "Anchorage of Proximate Fillings in Bicuspids and Molars," published in June number of the DENTAL REVIEW, admits that we have no knowledge on the subject, in the following terms in referring to the strain placed upon the individual strain.

"What is this strain? I can, with my right hand, grip one hundred and twenty pounds, as measured by an apparatus designed for that purpose. With what force can I close my jaws? So far as I know, we have no apparatus for measuring the bite, and in the more scientific sense it remains an unknown factor. It must, however, be much greater than the grip of the hand, and amounts to hundreds of pounds. Hans Block, of Dresden, Germany, in his papers on mastication, in the *Dental Cosmos*, 1893, page 187, states that some acrobats can close the mouth with a force of five hundred pounds, and that ordinary persons can exert a force of three hundred pounds. But these statements seem to be based on accurate determinations."

In the discussions which followed the paper of Dr. Black, Dr. J. J. R. Patrick stated that during a visit to the iron regions of Pennsylvania he had the privilege of testing the amount of pressure necessary to break nuts of various kinds, in the machines used in the large iron works for testing the resistances of their output of iron and steel. He found that one hundred and twenty pounds was the greatest pressure required to break the nuts. Similar nuts, as closely resembling the broken ones as possible, were then given to the strongest of the workmen to crack with their teeth, but each one failed in the attempt. He judged from this admittedly crude experiment, that the force of the jaws must be, of course, less than one hundred and twenty pounds registered by the testing machines.

Acting upon this valuable hint of Dr. Patrick, the instrument was then prepared with a registry of ninety-five pounds. As soon as prepared, tests were conducted to determine the actual masticatory force of the maxillary muscles.

At the present time but one person has been found who could accomplish the full registry. From forty to sixty mouths have been examined. The range of the indicator, when placed between the molar teeth of the adult jaw, was from sixty-five to eighty-five pounds, occasionally, but rarely passing from eighty-five to ninety-five pounds. Between the bicuspids the force is found to diminish from five to fifteen pounds, the range extending from fifty to sixty-five pounds. Between the incisors the range extends from thirty to fifty-five pounds, showing a further diminution of about twenty pounds, as the pressure was applied at a greater distance from the location of the power.

Among children whose ages range from eight to fourteen years, a peculiar fact was noted in that the greater force was applied through the incisor rather than through the molar teeth. The force exerted in these cases ranged from twelve to twenty-five pounds upon the anterior teeth, while upon the posterior the range was from ten to twenty pounds. The cause for this state of affairs is easily explained, in that during these years the permanent incisors have become firmly fixed in the jaws, while the temporary molars are being absorbed, their roots lacking the usual strength, which by reflection caused a lesser force to be exerted by the muscles of the jaw.

In the mouths of persons wearing plates, the amount of force exerted was still less, ranging only from five to twenty pounds.

These figures apply to the greatest force that the jaws of persons of average strength exert. It is the belief of the writer, based upon experiments in his own mouth, that the actual pressure exerted in the jaws of the ordinary movements of chewing the food, is only about one-half that of the figures given above, while in most cases in which the food is not properly masticated the force exerted will be found to be only one-third to only one-fourth that of the figures.

Thus it will be noted that our preconceived ideas in regard to the masticating force of the jaws has been greatly at variance with the actual facts. It is the hope of the essayist that the facts here set forth may be of service in the future in the study of strains placed upon fillings, crowns and bridges, and all artificial dentures of any kind whatsoever.

As his observations become more extensive, further statistical information will be furnished through the medium of the Dental Journals.

PREPARATION OF CAVITIES AND INTRODUCTION OF GOLD.*

BY DR. C. W. NUTTING, SPRING VALLEY, MINNESOTA.

At the urgent request of the President of this society I have been induced to prepare the following circular and questions which I sent out to one hundred and thirty different members of the profession, seventy-five going into this State, and fifty-five into the adjoining States:

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*Read before the Minnesota State Dental Society.

I—PREPARATION OF CAVITIES.

1. Is it ever advisable to leave decay and permanently place a gold filling over it?
2. If you advise leaving decay, under what conditions would you do it?
3. Would you sterilize decay left in cavity, and if so, can it be done and the tooth filled with safety at the same sitting or would you advise leaving sterilizing agent for a few days?
4. In approximal cavities, do you advise the cutting away of firm tooth structure in anticipation of future decay?
5. Is it necessary to make the lingual and labial walls a safe distance from the point of contact?
6. What is the importance, if any, of the interproximal space?
7. Do you bevel all cavity borders, or do you prepare them parallel to the enamel rods?
8. Do you polish all borders?
9. What form of retention do you use—grooves, undercuts, pits, or all?
10. In approximal cavities of anterior teeth is it necessary to groove both lingual and labial walls?
11. What form do you make at cervical margins?
12. What form do you make at cervical walls?

II—INTRODUCTION OF GOLD.

1. Do you use noncohesive gold, and if so, in what way?
2. Does noncohesive gold have cohesive qualities?
3. Do you use cohesive gold for a filling throughout, and if so, do you find any difficulty in adapting it to the walls of cavity?
4. Do you use crystal gold? What make, and where use it?
5. What kind of a mallet do you use, and what make—automatic, pneumatic, mechanical, engine, electric or hand? If hand, of what material is it made, and what weight?
6. In hand mallet, what kind of a blow do you use, and the theory of same?
7. In what part of following cavities would you start a filling? (a) approximal cavities of incisors. (b) approximal cavities of bicuspids and molars. (c) crown cavities of bicuspids and molars.
8. Do you work part of filling higher than rest, if so, what part?
9. Any importance of keeping surface of filling smooth while working? If so, what?
10. Do you advocate use of matrix, and if so, where and under what circumstances?
11. How do you finish cervical margins?
12. What is the importance of contour and contact?

I received thirty-six replies, nineteen from this State and seventeen from outside. I received letters of regret from Drs. Ingersoll, Watling, Ames, and Cattell, stating their impossibility of contributing on account of work in connection with the World's Columbian Dental Congress. The object of this method of preparing an essay is obvious to all. It not only brings a discussion from prominent men of the profession, who are unable to be with us to-day, but it also brings out more of a universal discussion from all, on various points of importance, which could not be touched in a general way. Many other important questions could have been brought out in this essay, but we have already enough to fill a volume were we to go into them in detail. We regret that by some a few of the questions were interpreted misunderstandingly, as we endeavored to make all as plain as possible, but trusting that you will overlook this natural imperfection we hope to enlist such an interest in these contributions that we may derive some benefit from these thoughts of others. Time will not permit us to go very much into detail, but we shall endeavor to bring out tersely and plainly the many good points we have obtained from the responses received. I, myself, shall abstain from making any comments on the answers, leaving this entirely in the hands of those who deem this essay worthy of discussion. I feel as if my work had been enough already in gathering and compiling these contributions without giving my opinion of each method of operating, and I am sure that you, for your own sakes, had much rather I would enter at once upon the questions before us for discussion.

As to question No. 1, under the head of "Preparation of Cavities." "Is it ever advisable to leave decay and permanently place a good filling over it," thirty-six responded. Drs. Penberthy, Van Duzee, Price, James, Stearns, Jones, Hoff, Wenker, Swain, McCausey, Bromily, Allison, Grout, Barney, Hause, Kellogg and Chandler distinctly answer in the affirmative by the emphatic little word "yes." Drs. Harris, Bond, Lewis, Cruttenden, and Wood, likewise make the little "no" quite emphatic. Dr. Harlan says, "not often," which is virtually saying he would sometimes. Drs. Johnson, Peterson, and Jenison would not place a gold filling over soft decay, but would over slight decalcified dentine. Dr. Johnson further says it should not be left where there is any danger of this nearly disintegrated mass of dentine reaching the cavity border in any portion of its outline. Dr. Southwell says: "It will jeopardize the exposure of a pulp by removing all the decay if very deep seated." Dr. Goodrich is of the opinion that brown decay only, should be left. Dr. Brimmer calls it stained dentine and would leave such. Dr. Taft says partially decomposed dentine in well organized teeth may be left, but it is a question whether if in any case, wholly decalcified residuum should be left for this purpose. Rarely, if ever, to be left over aching pulp, or as a covering where patient is feeble or suffering from any general disease or affection. Dr. Leonard says: "If margin of cavities are clean and well-protected, decay inside will not take place, even if not thoroughly excavated." Dr. Weeks would not leave decay to any great extent, especially such as layers that can be lifted with excavator, or that which will bend under pressure.

Question No. 2. "If you advise leaving decay, under what condition would you do it?"

Drs. Van Duzee, Goodrich, Price, Jenison, Johnson, Stearns, Jones, Hoff, Cruttenden, Bromily, Allison, Grout, Hause, Kellogg, and Chandler, say that the conditions to govern such a procedure are for the protection of the pulp where the exposure would be liable, and it to be in a healthy condition. Dr. Southwell: "By sterilizing already softened dentine, and the introduction of an oxychloride filling." Drs. Penberthy and Barney say: "Where decay is of hard nature;" and Dr. Barney further says, "It ought to be capped with oxyphosphate or oxychloride." Dr. Peterson: "When over nerve and only discolored." Dr. Harris says: "It is sometime advisable to leave thin covering of decalcified tissue over nerve." Dr. Harlan: "In young teeth." Dr. James: "Where decay would be less irritating than any substitute for capping." Dr. Taft: "When softened dentine is permitted to remain, it should have thorough antiseptic treatment, and the immediate covering should be either a varnish of copal, oxyphosphate of creamy consistence, or a very thin layer of Hill's stopping, either in solution or solid." Dr. Leonard says: "When in excavating, the pulp will be in danger, either by exposure, or causing a thin layer, so that thermal changes will be felt." Drs. Wenker and Swain would leave decay under the conditions that it should be sterilized with oil of cassia; and Dr. Wenker further states the necessity of then covering cement, to protect the thin wall over the pulp. Drs. Bond and McCausey, under the conditions that the pulp is healthy with only partial destruction of lime salts. Dr. Brimmer: "When near nerve and artificial capping would never be so easy." Dr. Gramm: "Provided that the pulp was not congested nor heretofore irritated, and the decalcified dentine served as a needed non-conducting covering for the pulp."

Dr. Weeks: "Discolored dentine, if firm, and if it can be thoroughly dried with hot air. I sometimes leave, if I fear too close approach to the pulp." Dr. Knight would leave black, hard decay to protect the pulp.

Dr. Cushing says: "When its complete removal would expose the pulp, any tooth that had never given any trouble, I would leave a layer or two of softened dentine when the cavity would admit of the covering of the softened dentine with oxyphosphate?"

To the third question—"Would you sterilize decay left in cavity, and if so, can it be done and the tooth filled with safety at the same sitting, or would you advise leaving sterilizing agent for a few days." Drs. Van Duzee, Goodrich, Harris, Peterson, Price, Leonard, Hoff, Barney, Wenker, McCausey, Bromily, Allison, Grout, Hause, Knight and Chandler say: "Sterilize and fill at once," a few prefixing the conditional word "generally." Dr. Peterson adds, "do not leave agent in." Dr. Hoff adds, "generally at one sitting." Dr. Barney adds, "use fifty per cent solution carbolic acid solution, then oil of cloves; remove outside layer of decay and cap." Dr. Bromily adds, "if you do not have to leave too much decalcified dentine, then leave agent three or four days." Dr. Jenison says: "Yes, when the pulp is only slightly congested." Dr. James: "Sterilize and leave twenty-four hours." Dr. Taft would sterilize in all cases, leaving temporary filling for from two weeks to three months, one or two applications being better than a large number. Agents he uses are bichloride of mercury, carbolic acid and aqueous solution of pyrozone, or five per cent ethereal solution. Dr. Southwell: "Sterilize and allow cement filling to remain a short time, then remove enough to obtain good anchorage for gold." Dr. Johnson goes into detail a little more, giving the following method: "Decalcified dentine should always be sterilized. It can be done at one sitting if too much of infected dentine is not allowed to remain, and the proper methods are employed. Rubber-dam should always be used; the moisture evaporated with warm air, antiseptic allowed to flood the cavity; after thorough soaking, place cement filling over decalcified dentine, allowing it to harden, when a gold filling can be inserted." Dr. Jones: "If in small quantities, it can be sterilized at one sitting, otherwise it should be left two or three days." Drs. Harlan, Bond and Kellogg would use a good sterilizing agent for a few days. Dr. Stearns says: "It is immaterial. The diseased dentine becomes sterilized by inhibition." Dr. Cruttenden would not, and fill permanently at one sitting. Dr. Lewis says: "No, cut away till you get a good solid basis." Dr. Brimmer, would sterilize and fill as soon as possible. Dr. Wood would sterilize only where he uses amalgam. Dr. Gramm: "Decay should be sterilized and as described, and the tooth filled at the same sitting. Rubber dam should be used, the cavity should be desiccated by the alternating use of alcohol and warm air. This should be followed by a thorough drenching with eucalyptol or any preferable nonirritating antiseptic or sporicide, and the painting of the dentine with a solution of gutta-percha in eucalyptol. The insertion of oxyphosphate would fit the tooth for the reception of a metallic filling." Dr. Weeks: "Always sterilize a cavity whether any decay is left or not, relying on hot air, wood creosote, carbolic acid, oil of cloves and cinnamon. In deep seated caries I varnish over the bottom of the cavity nearest the pulp with Canada balsam cut in chloroform or copal ether varnish. Line with cement, or fill with cement and cut out part later and fill. I never leave decay to such an extent that I cannot dry it, or that I think it will take days to sterilize. Dr. Cushing "always sterilizes, sealing antiseptics into cavity and leaving three days."

No. 4. "In approximal cavities, do you advise cutting away firm tooth structure in anticipation of future decay?"

Drs. Van Duzee, Harris, Peterson, Jenison, James, Jones, Hoff, Bond, Bromily, Brimmer, Allison, Hause, Weeks, Kellogg, Knight and Chandler, respond with the simple word "yes." Drs. Harlan, Taft Leonard, Cushing, and Pemberthy say "no"; The latter adding, "not if firm." Dr. Southwell, would cut away sufficient for self cleansing on the bucco-lingual and bucco-palatine surfaces. Dr. Goodrich says: "When tooth at margin would come in contact with opposite tooth." Dr. Johnson is a believer "in extension for prevention," but says judgment should be used. Dr. Stearns says, "very rarely." Dr. Cruttenden: "Yes, in fissures and unreliable walls."

Dr. Barney, would cut to a certain extent, except in teeth of best structure. Dr. Wenker, would cut at cervical wall. Dr. Swain says: "Sometimes, circumstances governing." Dr. McCausey: "At times, and when the same is and will be connected with the cavity of decay." Dr. Wood: "Cut to heavy line in sulci."

Dr. Gramm: "Firm tooth structure in patients without systemic lesions or degenerative diathesis need not be cut away in proximal cavities, lest it be to gain a necessarily better view of the same."

No. 5. "Is it necessary to make lingual and labial walls a safe distance from the point of contact?"

Drs. Wenker and Lewis, say: "No." Dr. McCausey: "Not if cleanliness can be assured without." Dr. Gramm: "Only in instance of low vitality of tooth structure, and in persons with marked tendency to erosion of enamel." The remaining thirty-two respond in the affirmative.

No. 6. "What is the importance, if any, of the interproximal space?"

Drs. Southwell, Harris, Price, James, Taft, Wenker, Brimmer, Allison, Hause, Weeks, Kellogg and Chandler tell us that the interproximal space is important as a self cleanser, and affords health to the gingival border. Dr. Van Duzee: "A space for proper nutrition and maintenance of free border of gum, preventing recession of gum tissue from normal position and also provides for easy removal of food." Dr. Goodrich: "That the teeth may have the natural environments, the contour and interdental space." Dr. Harlan says: "It is a comfort to the patient." Dr. Johnson: "A comfort in mastication, and to avoid recurrence of decay. Dr. Jones is of the opinion that there should be no space to allow collections. Dr. Hoff is of the opinion that it is of no importance. Dr. Cruttenden says: "It is a good place for careless patients to store up food." Dr. Swain: "It attains free circulation of fluids (saliva) and cleansing with toothpicks." Dr. Bond: "Protection of gum tissue, and prevents decay in mesial and distal surfaces." Dr. McCausey: "It furnishes space for lodgment of a larger amount of food." Dr. Grout: "Holds the teeth in contact near the cutting edge, preventing decay." Dr. Gramm: "If cleanliness is next to Godliness, and conservation of the teeth, interproximal spaces are valuable." Dr. Knight: "Easily cleansed, less liable to decay." Dr. Cushing: "It is of the greatest importance, as its destruction frequently causes serious disease of the gum between the teeth, sometimes resulting in pyorrhea, and very frequently causing extreme pain, sometimes agony, by reason of the food pressing upon the exposed gum."

No. 7. "Do you bevel all cavities, or do you prepare them parallel to the enamel rods?"

Drs. Southwell, Van Duzee, Goodrich, Harlan, Price, Johnson, Stearns, Hoff, Cruttenden, Wenker, Lewis, McCausey, Wood, Allison, Grout, Hause, Weeks, Kellogg, Knight and Chandler all aim to bevel the cavity borders. Drs. Penberthy, Taft and Barney use both, remarking that it depends on the character of the tooth operated upon. Dr. Leonard has no set rule. Drs. Jones and Bond bevel on grinding surface only. Dr. Swain prepares the borders parallel to the enamel rods, where possible, beveling when cutting across the rod. Dr. Bromily uses both methods, and Dr. Brimmer aims to cut parallel, but does bevel sometimes. Dr. Gramm: "Parallel whenever practicable." Dr. Cushing says: "All cavity borders should be cut on the line of the enamel rod; the enamel should then be beveled slightly at an angle of about thirty degrees."

No. 8. "Do you polish all borders?"

Drs. Southwell, Penberthy, Harris, Harlan, Price, James, Taft, Leonard, Jones, Hoff, Barney, Wenker, Bond, Lewis, McCausey, Brimmer, Allison, Grout, Hause, Weeks, Kellogg, Knight and Chandler say "yes," supplementing the words "as a rule" and "as far as possible."

Dr. Goodrich uses fine sand-paper strips, and does not touch afterward. Drs. Van Duzee, Stearns, Bromily and Wood would not polish.

Dr. Johnson says: "If enamel is beveled with a chisel it will need smoothing, care being exercised to avoid rounding outer margins too much, leaving a thin edge to the filling." Dr. Swain says: "Not always." Dr. Cushing: "All borders should be made as nearly smooth as possible. To polish them would round them. This should be avoided. The most perfect margins can be secured by the use of very thin, flexible excavators or chisels, made as keen as a razor and then used with a slightly scooping motion and the lightest possible touch, so as to shave the margins and not to crush them."

No. 7. "What form of retention do you use—grooves, undercuts, pits, or all?"

Drs. Peterson, Price, Hoff, Cruttenden, Barney, Swain, Brimmer, Wood, Stearns, Kellogg and Allison use all forms, Dr. Hoff adding that he is not afraid of pits. Drs. Harlan, Southwell and Grout use grooves mostly. Drs. Van Duzee, James, Leonard, Jones, Wenker, Lewis, Knight and Bond use grooves and undercuts. Drs. Goodrich and Bromily, undercuts and pits. Dr. McCausey, grooves and pits as a rule. Dr. Jenison depends on retaining shape. Drs. Taft, Weeks and Johnson also depend on a general retaining form, with a little grooving when necessary. Dr. Gramm: "Whenever possible, I rely upon general shaping of cavity alone. Grooves are often necessary, undercuts are dangerous, and pits are damnable." Dr. Hause: "Usually undercuts, but as light as consistent with resistance of filling." Dr. Cushing: "All or none, according to the particular case in hand."

No. 10. "In approximal cavities of teeth is it necessary to groove both lingual and labial walls?"

To this question I report only the direct answers. Drs. Southwell, Penberthy, Goodrich, Harris, Price, James, Stearns, Wenker, Bond, Bromily, Wood, Allison, Grout, Chandler, Peterson, Hause and Weeks say there is no necessity of grooving both walls.

Dr. Southwell adds that "he bevels the lingual wall." Dr. Hause adds: "Labial wall of the two." Dr. Van Duzee would "groove both if the walls are strong." Drs. Harlan, Taft, Hoff and Knight say "yes." Dr. Jones is of the opinion that two walls are sufficient. Dr. Swain forms the cavity so as to retain filling mechanically. Dr. McCausey says: "When thickness of wall will permit." Dr. Brimmer is governed by chance for anchorage. Dr. Gramm: "The grooving of labial and lingual walls depends much upon the support at distal point of the cavity. When this is good I either do not groove at all, or only the cervical third of said walls. When the support is negative, both walls may have to be grooved in their entirety." Dr. Cushing says: "It is not necessary, and sometimes would be entirely inadmissable, but is sometimes desirable."

No. 11. "What form do you make at cervical margin?"

This question was either not thoroughly understood or else it was not clearly put, as many did not give the answers as I expected, although they differ but little in the main, but do in the wording. I give you each one's opinion avoiding any classification whatever. Dr. Southwell: "Square and flat." Dr. Penberthy: "Triangular shape." Dr. Van Duzee: "Margin beneath gum nearly a triangle." Dr. Goodrich: "Rounded slightly." Dr. Harris: "Nearly a floor." Dr. Peterson: "Like base of triangle." Dr. Harlan: "Bevel." Dr. Price: "Square or margin beveled toward gum." Dr. James: "Margin as heavy as possible." Dr. Taft:

"Beveled or rounded." Dr. Johnson: "Horizontal line." Dr. Jones: "Slightly rounded." Dr. Hoff: "Square or triangular." Dr. Barney: "Cut away enamel, and dress parallel to rods." Dr. Wenker: "Circular." Dr. McCausey: "Avoid beveled edge and make square or flat." Dr. Grout: "Deep groove or undercut." Dr. Chandler: "Rounded." Dr. Hause: "Somewhat of shape of tooth at that point with rounded corners." Dr. Weeks: "Slightly curve with enamel margin beveled." Dr. Kellogg: "Right angle." Dr. Knight: "Bevel." Dr. Cushing: "Cervical margins in their outline should present no sharp angles, all such should be rounded."

No. 12. "What form do you make a cervical wall?"

Drs. Southwell, Penberthy, Goodrich, Van Duzee, Harris, Harlan, Johnson, Hoff, Wenker, Swain, McCausey, Grout, Weeks, Hause and Chandler. All universally advise the use of a strong square nearly flat formation for the cervical walls. Dr. Peterson usually makes an oval formation. Dr. Price uses grooves and pits. Dr. James, grooves; Dr. Jones, almost straight with slight angle to side of tooth; Dr. Bromily, curve; Dr. Kellogg, undercut in, bevel out; Dr. Cushing, the cervical walls should present a clean surface at a right angle with the axis of the tooth; Dr. Knight, uses groove.

INTRODUCTION OF GOLD.

No. 1. "Do you use the noncohesive gold, and if so, in what way?"

Drs. Southwell, Goodrich, Price, Stearns, Cruttenden, Barney, Lewis, Wood, Allison and Weeks do not use it. Drs. Penberthy, James, Peterson and Chandler use it sometimes in starting. Dr. Van Duzee, in small pocket cavities and at cervical portion of proximate cavities and large crown cavities. Dr. Harlan, in buccal cavities. Dr. Jenison, for protection of margin, and in starting any large cavities. Dr. Taft and Kellogg, use it for body of filling, finishing with cohesive. Dr. Johnson, in starting fillings and in deep undercuts and in accessible corners. In deep, well-shaped cavities with four strong walls he fills nearly full with noncohesive. Dr. Leonard, uses it in chunks for floor of cavities. Dr. Hoff, to start large fillings in posterior teeth. Dr. Bond, at cervical wall, and in very small cavities. Dr. McCausey, at cervical walls where matrix can be used. Drs. Harris, Jones, Wenker, Swain, Bromily, Hause and Grout say: "Yes." Dr. Cushing, "Yes, sometimes use it by the wedging process." Dr. Knight: "Yes, to adapt to walls."

No. 2. "Does noncohesive gold have cohesive qualities."

Drs. Penberthy, Harris and Jones respond with a "yes." Drs. Van Duzee, Jenison, James, Taft, Leonard, Hause. Barney, Wenker, Bond, Brimmer, Wood, Allison, Grout, Chandler, Bromily, Hause, Weeks and Knight, all are of the opinion that it possesses cohesive qualities when annealed, some saying only to a slight degree. Dr. Goodrich thinks it does. Drs. Harlan, Price, Johnson, Stearns, Cruttenden, Swain and McCausey are quite emphatic with a "no." But Dr. Johnson adds that he thinks the most of the so-called *noncohesive* gold on the market to-day has some cohesive properties. Dr. Southwell says that, "it is only adhesive." Dr. Cushing: "Some so-called noncohesive gold will become quite cohesive by annealing."

No. 3. Do you use cohesive gold for a filling throughout, and if so do you find difficulty in adapting it to the walls of cavity."

Drs. Southwell, Penberthy, Goodrich, Peterson, Harlan, Price, James, Taft, Leonard, Stearns, Hoff, Cruttenden, Barney, Swain, McCausey, Wood, Allison and Bond all use cohesive gold throughout, and further say that they find no difficulty in adapting to walls of cavity, with proper care. Dr. Leonard, uses it only in the anterior teeth. Dr. Hoff, adding that he finds no difficulty in making an entire filling of No. 60 cohesive foil. Drs. Jenison and Johnson seldom use it throughout, and further state that it can be done with proper care. Drs. Van Duzee, Harris, Jones, Wenker, Bromily, Brimmer, Grout, Hause, Kellogg and Chandler answer in the negative. Dr. Weeks: "Yes, in many cases I do. In some cases it is difficult, but I find the difficulty largely removed by the cutting away of the walls of the cavity and not trying to fill inaccessible places in overhanging enamel.

Dr. Cushing says: "Frequently that he finds no difficulty in adapting to the walls of the cavity if he makes pressure toward all the walls, the way he should do."

No. 4. "Do you use crystal gold? What make, and where do you use it?" "Drs. Harris, Johnson, Hoff, Bromily, Wood, Allison, Grout, Taft, Bond, Weeks, Hause, Kellogg and Knight are the only ones responding who use crystal gold, all makes of the crystal family being used; Dr. Johnson using it in deep occlusal cavities in molars and bicuspids, filling them about one-half full;

Drs. Hoff, Allison, Grout and Wood using it for starting. Dr. Grout adding in difficult places to reach, and Dr. Wood further uses it for lower part of cavity, but never where there will be a strain, and also for filling imperfections. Dr. Weeks uses it for simple cavities both large and small, for lower half or third in many approximal cavities, and often for just starting filling without retaining pit.

Dr. Gramm uses a method entirely different from that of any one else responding, and I have seen fit to give his method verbatim as he gave it to me. He makes question No. 1, 2, 3 and 4 as one answer. He says: "I use S. S. White's crystal mat gold almost to exclusion. Exception to the above is made in contour fillings in which work "mat gold" is used approximately to the walls of the cavity, while in the center it is alternated with Pack's cylinders, annealed to considerable cohesiveness. The above mat gold possesses the admirable quality of being remarkable soft and adaptable, and yet cohesive to an exceeding degree. In its manipulation I use hand pressure only; gentle compression at first, followed by condensation with small round headed burnishers.

"The solidity and adaptation of a filling condensed in this manner I have, by a series of experiments, found to be superior to that condensed by mallets of any description."

No. 5. "What kind of a mallet do you use, and what make—automatic, pneumatic, mechanical, engine, electric, or hand? If hand, of what material is it made and what weight?"

No. 6. "In hand mallet, what kind of blow do you use, and the theory of the same?" These two questions I condense into one answer as they properly belong together. A very large majority use the various makes of hand mallets, although at times a great many of this number use some make of a mechanical mallet, which I quote briefly. The following using the automatic: Drs. Penberthy, Harris, Stearns, Cruttenden, Barney, Wenker, Bond, Lewis, McCausey, Brimmer, Allison, Leonard, Chandler, Weeks, Kellogg, Gramm, and Knight. The Peck's pneumatic is used by Dr. Jones occasionally. Bonwill's mechanical, by Drs. Bond and Kellogg. The electric, by Drs. Southwell, Taft, and Gramm. The following use hand mallets of the make stated, and all are quite emphatic with their preference for the hand mallet. Dr. Penberthy, lead, weight five ounces. Uses a quick, rapid blow, saying that the gold is condensed better. Dr. Van

Duzee, lead face, brass shell, medium weight. Uses a blow, varying through wide latitude, to avoid nervous exhaustion.

Dr. Goodrich, lead, faced with leather, weight four ounces. Double blow; the first drives the gold to place, and the second packs it.

Dr. Peterson, boxwood, lead filled. Dr. Harlan, wood and lead, weight five and one-half ounces; double stroke. Dr. Price, rubber, weight two ounces. A blow of moderate force, does better work. Dr. Jenison uses a mallet of his own make. Dr. James, lead, weight five ounces. A uniform blow so as to condense all parts alike. Dr. Taft, lead, three ounces. Is regulated by various circumstances. A springy blow rather than a dead heavy thud. The force regulated by the susceptibility of the patient and the tooth, by size and shape of point of plugger, by amount of gold under it, and by part of cavity operated upon. A lighter stroke should be used next to the wall of the cavity. Dr. Johnson, steel, weight two ounces, sharp, decisive blow. In ordinary building up, he uses a double blow, until reaching flat surface, then blows, one following the other in rapid succession. Dr. Stearns, steel, three ounces ; a single blow as heavy as can be used, on account of less irritation. Dr. Jones, wood and steel.

Dr. Hoff, lead and tin, weight six ounces ; single blow of sufficient force to condense. Dr. Swain, kind not mentioned, weight four ounces, double blow. Dr. Bond, steel, uses double blow on large fillings. Dr. Lewis, S. S. W., filled with lead, weight three ounces ; double blow. Dr. Bromily, lead, weight six and three-quarters ounces; rapid blow.

Dr. Brimmer, uses hand pressure mostly, his hand mallet is wood ; short quick blow, hurts less. Dr. Wood, lead, single blow. Dr. Allison, steel, weight four ounces, blow not governed. Dr. Leonard, vulcanized rubber ; blow sufficient to condense gold. Dr. Grout, lead, two ounces. Dr. Hause, lead, leather faced. Dr. Gramm, lead, four and one-half ounces, light blow. Dr. Cushing, kind not designated, light blow.

No. 7. "In what part of the following cavities would you start a filling." (a) Approximal cavities of Incisors. (b) Approximal cavities of Bicuspid and Molars. (c) Crown cavities of Bicuspids and Molars." To this question the answers vary but little, a variety of which I only quote. In approximal cavities of the incisors the following starting points were recommended : Cervicopalatine, most remote part, at bottom, wedging across into opposite undercuts. Cervical cervico-labial, or lingual. Cervical angle. In groove at margin of gum. Cervico-lingual angle. In approximal cavities of bicuspids and molars, the following starting points were recommended : Cervical, across cervical border, cervico-buccal, or lingual. Large pieces packed upon floor, covering well the margin at the gum line. Cervical groove. In crown cavities of bicuspid and molars, the points recommended were : Anterior and posterior fissures. Point furthest from me. Posterior wall of cavity. Unannealed gold in large quantities wedged in. In floor of cavity.

No. 8. "Do you work part of filling higher than rest, if so, what part ?" Drs. Penberthy, Van Duzee, Harlan, Price, and Grout, work the center higher if any. Drs. Goodrich, Harris, Peterson, James, Johnson, Stearns, Barney, Bond, Wood, Chandler, Hause, Weeks, Kellogg, Knight and Cushing, work part, touching the walls the highest. Cushing adding if you use cohesive gold. Drs. Hoff, McCausey, Bromily, Brimmer, Leonard, and Allison, keep as even as possible. Dr. Hoff, adding sometimes the center. Dr. Taft remarks that he has no uniform rule, but says there is an objection to working center higher, as you make an acute angle to work into next to the walls. It is quite as well to bring whole surface along together. Dr. Wenker says : "In approximal cavities next cervical wall, highest." Dr. Southwell says : "Furthest part from me and work toward me, so as not to obstruct the view." Dr. Gramm keeps his fillings concave until border of cavity has been reached.

No. 9. "Any importance of keeping surface of filling smooth while working ? If so, what ?"

To this we get the following answers: Dr. Southwell: "Yes it is easier to finish and saves time." Dr. Penberthy : "More evenly condensed all over surface." Dr. Van Duzee: "Better welding, easier manipulation and to avoid pits." Dr. Goodrich: "Better adaptation of gold." Dr. Harris: "Better cohesion." Dr. Price: "Better a little rough except at finish." Dr. Jenison: "Smooth enough to assure uniform condensation." Dr. James: "To avoid bridging." Dr. Taft: "To keep cohesive condition." Dr. Leonard: "Filling more compact unless liable to disintegrate." Dr. Stearns: "Ability to condense properly." Dr. Hoff: "To secure condensation and true form." Dr. Barney: "Portion about margin in large cavities kept smooth, but the center may not be packed so hard as it is liable to check the tooth." Dr. Bond: "Enables operator to see what he is doing.'' Dr. McCausey: "Evenness, yes." Dr. Bromily: "To secure good finishing surface.'' Dr. Brimmer: "More perfect condensation." Dr. Wood: "More evenly condensed." Dr. Allison: "Makes a more solid filling." Dr. Gramm: "Smoothness of surface is essential to perfect solidity of filling." Dr. Grout: "Prevents pits." Dr. Hause: "Enough to be sure of each piece being thoroughly welded." Dr. Weeks: ''Surface of gold should be kept even while working, as a perfect solid filling cannot be made otherwise." Dr. Kellogg: "Less danger of pitting." Dr. Cushing: "It is important to keep the surface as nearly uniform as possible, whether it be concave, convex, or plain, as when there are great irregularities it is more difficult to unite perfectly the surfaces of gold." Dr. Knight: "Yes, make solid, and avoid pits." Drs. Harlan, Wenker and Swain say "No."

No. 10. ''Do you advocate use of matrix, and if so, where and under what circumstances ? "

Dr. Southwell: "Uses only with alloys." Dr. Harris: " To start approximal gold fillings in bicuspids and molars, never useing annealed gold next to it." Dr. Peterson: "Not as a rule.'' Dr. Harlan: " No." Dr. Price: ''It is a delusion and a snare." Dr. James: ''In approximal cavities of bicuspids and molars where sufcient separation cannot be obtained." Dr. Johnson says: "A matrix of proper form can be used to great advantage in distal cavities." Dr. Leonard: "Only where large portions of bicuspids or molars are gone and I wish to build up instead of crowning." Dr. Stearns: "As a guide wherever applicable." Dr. Jones: "Only where it would be difficult without." Drs. Cruttenden, Wood and Barney have no use for it. Dr. Bromily: "In large compound proximal cavities, filling with plastics." Dr. Brimmer: "Use it when I can adapt nicely to cervical wall. It assists in firmer anchorage." Dr. Weeks: ''Seldom uses it, and then only for posterior-proximal cavities of bicuspids and molars." Dr. Gramm: "Uses matrix rarely and only after borders have been reached and covered.'' Dr. Cushing: ''Thinks it all right in the hands of experts." Drs. Van Duzee, Goodrich, Jenison, Taft, Hoff, Wenker, Swain, Bond, Lewis, McCausey, Chandler, Hause, Grout and Knight, would advocate the use of it in approximal cavities of bicuspids and molars, some stating that they would use it in all cases, but most only in distal cavities.

No. 11. "How do you finish cervical margins?"

This question is nearly universally answered, "with strips and files," some using disks, a few advocating the filling of cavity half full and then finishing the cervical margin when you have a better view. All the contributors are emphatic about the leaving of over lapping edges of thin gold. Dr. Cushing is a little more definite in the width of the strips used, saying that he uses strips, only one-fiftieth of an inch wide. He also uses very thin, flexible, keen chisels, mainly.

No. 12. "What is the importance of contour and contact?"

We quote in full the following answers, as they are all quite interesting: Dr. Southwell: "Ideal work-contour, allowing contact at cutting edge, and allows free space at cervical wall." Dr. Penberthy: "That soft parts may be protected from food being forced against it. It affords contact with filling and natural tooth substance." Dr. Van Duzee: "Restores lost structure, prevents loss of interproximal space, and to preserve occlusion, to protect gums." Dr. Goodrich: "Restoration of tooth substance and self cleansing, as far as nature will do the work." Dr. Harris: "Retains teeth in relative position, prevents free admission of food between them, prevents margin of filling coming in contact with proximal tooth." Dr. Peterson: "To keep permanent separation." Dr. Harlan: "Comfort to patient, and prevents further decay." Dr. Price: "None but appearance." Dr. Jenison: "Protection of soft tissues." Dr. James: "Restores mathematical point of contact, and preserves the interproximal space." Dr. Taft. "Mainly increased masticating surface." Dr. Johnson: "Failure to secure a proper contour and preserve a desirable contact will result in destruction of interproximal space."

Dr. Leonard: "Contact keeps food from crowding between teeth, contour; when it does, it readily washes out." Dr. Stearns: "Prevents capillary between enamel walls." Dr. Hoff: "Secures continuous masticating surface, and prevents accumulation of food between teeth, and contact at masticating surface avoided at gum margin." Dr. Cruttenden: "They please the eye." Dr. Barney: "Restores lost part of tooth to natural position, protects from attack of caries." Dr. Wenker: "Preservation of interproximal space, and prevents recurrence of decay." Dr. Bond: "They are nature's arrangements, when nature is at her best.'' Dr. McCausey: "Prevents contact of enamel." Dr. Bromily: "Natural support of teeth in their normal position.'' Dr. Brimmer: "Prevents decay by self-cleansing.'' Dr. Wood: " Prevents entrance and retention of food, and keeps gum tissue in good condition.'' Dr. Allison : Stability and beauty." Dr. Grout: "Retains the shape of tooth, interproximal space, and prevents enamel edges coming into contact.'' Dr. Chandler: "Prevents wedging of food and supports articulation." Dr. Hause: "For the preservation of the interproximal spaces, utility and beauty of the teeth.'' Dr. Weeks: "Contour and contact are both necessary for the protection and maintenance of the interproximal space, and we must also depend largely on contour and contact to hold the teeth in proper position, the preservation of the arch and perfect articulation.'' Dr. Cushing: "Contour and contact in bicuspids and molars are essential to restore or preserve the interproximal space.'' Dr. Knight: "It avoids crowding or wedging of food, and gives interproximal spaces."

In summing up these answers I can add nothing to their value. They speak their own praises. True it is that there is a diversity of opinion, each individual having his own ideas and methods of work, but you will find by a careful review of the replies that a large majority agree in the main, and on principal points.

We cannot say, however, that now this matter of "preparing cavities and the introduction of gold" is settled forever, as this is not a trial where the majority rules, or even where the minority has the floor. We are not before the court to be judged by the testimony received, but we are a body of dentists, in convention assembled, to seek after the truth and gain what knowledge we can for the benefit of our profession. The old adage that "we gain the greatest and most important part of our knowledge through the information of others," is just as true to-day as it was the day it was written. Somebody has wisely said: "A pound of learning needs a ton of sense to use it." I wish to thank all who so kindly contributed to this essay, and if it proves a success I assure you it is not my ability that it is indebted.to, but to those who have granted me the privilege of using their ideas. If this essay will be a medium in bringing out a thorough discussion of this subject, and will result in giving to each one present here to-day a contribution to their storehouse of knowledge, inspiring each one to a greater activity in the promotion of the interests of the dental profession, I shall have done all I could expect to do.

Some Warmed Over Facts and Fancies about Amalgam.*

M. B. Wood, D. D. S., Mankato, Minn.

These facts and fancies are warmed over. because they are chiefly other men's ideas, collected and arranged after a certain order. The facts you may separate from the fancies according to your fancies, for you must admit that scarcely two will separate them alike, and admitting that, you will admit that a great deal of fancy enters into the practice of dentistry. I do not think a year passes without some prominent man in the profession making some positive statement in regard to some particular point in practice, and the words are scarcely out of his mouth before some one equally prominent makes a statement directly opposed to it. For this reason, I think, we are all likely to side with the one nearest *our* method, while the other man's method, in *his hands*, may be as good, or better. I think it right and proper to say what I cannot do or what has not been successful in my hands, but if I should attempt to say that *you* cannot do so and so, I should expect to come to grief in a very short time. In regard to amalgam. The first use made of it in this country, according to Dr. Cook in the *International*, was in New York city, in 1833, by the "Cracours," who were rated as quacks. Nearly every man in practice at the time felt outraged at the appearance of the material for the purpose, but it had not been on the ground long before most of them were using it on the sly, and in a few years they were not so sly about it. The first three regularly organized dental societies in this country (and I think in the world), denounced the material and the men who would use it. The first society, organized in 1840, through the report of its committee, is on record as saying that "the use of lithodion, mineral paste, and all other substances in which mercury is an ingredient, are injurious to the teeth, and that there is no tooth in which caries in it can be arrested and the organ rendered serviceable by filling in which gold cannot be employed."

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*Read before the Minnesota State Dental Society.

At its fourth annual meeting this society declares the use of amalgam to be malpractice, and its sixth annual meeting it went so far as to oblige all those who wished to remain in the society to sign a pledge not to use it. Too many men had by this time learned the value of amalgam and more were learning every day, so that, in order to have any members, the society at its eleventh annual meeting was obliged to withdraw its pledge. It was in 1845 that a society was organized in Philadelphia; this one did not denounce amalgam. From such an unpromising beginning amalgam has come down to us, often in the hands of disreputable men, but getting more and more into the hands of the best men, until to-day I think I am safe in saying that five teeth are filled with it to one with any other material.

We had a few years ago, " the new departure," headed by three men, Dr. Flagg, of Philadelphia, Dr. Palmer, of Syracuse and Dr. Chase of St. Louis, who declared that in proportion as a tooth needed saving, gold was the worst material that could be used. Dr. Flagg and Dr. Palmer both advanced in their writings as another feature of the departure, "the chemical theory" claiming that the mouth is a battery and that certain materials produce certain remarkable results on account of chemical changes in the mouth. To this, Dr. Bogue, of New York, says: "That is simply their theory, they have never proved it and that it should not be accepted until proved. In some incidents of practice I have found some prominent men cautioning the profession against letting any part of an amalgam filling rest on the gum." Dr. Clowes, of New York, says that he takes two bicuspids or two molars that are decayed to shells, treats and fills the roots and fills the entire space not only between the roots but between the teeth letting the amalgam rest on the gum, and forming what he calls a "grand molar." Dr. Clowes is also the inventor and patentee of amalgam bridges and in the April " Items of Interest " expresses himself—"To my beloved profession, greeting"—"Herewith you will find something more than an intimation of the progress in dental science. *The Scientific American* of October 17th, 1891, gave comprehensive illustrations of the manner and direction of this forward movement which is of so high and valuable a character that I am greatly concerned as to the best way of extending its usefulness." Dr. Clowes than goes on to express his love by farther announcing that for a consideration of $3,000 he will teach capable men and confer on them the right to practice in New York City. Outside of New York can get in on the ground floor for $2,000. I have procured a copy of the *Scientific American* referred to and those who are not afraid of expense may look at it. In 1888 Dr. Bonwill read a paper before the N. Y. Odontological Society bringing forward the method of packing amalgam with bibulous paper; the paper was also to absorb the surplus mercury. He magnified his discovery and has received considerable favorable comment on account of it. Two years after this method was presented Dr. B. F. Arrington, who claims to have made a special study for thirty-five years of amalgam and the instruments for its manipulation, read a paper before the Southern Dental Association in which he stated that the use of bibulous paper for absorbing the mercury was an absurdity.

We frequently see the claim that this or that alloy is the very best on earth, because it is richer in gold and platinum than any other. In a paper read before the Massachusetts Dental Society, Dr. Page, of Charlestown, said that "gold does not increase edge strength, hardness or toughness. The only benefit is a slight increased plasticity and quick setting, and it makes a smoother filling. Zinc would produce a similar result in a much smaller quantity, and also retard black discoloration, which gold does not; therefore zinc is more valuable than gold. Twenty out of the fifty-four alloys on the market contain zinc. *Platinum is of no benefit* to amalgam; it increases brittleness in alloys, renders them brittle in proportion to the amount used. It may in a small degree produce quick setting, but this could be accomplished with zinc or gold without the injurious effects of the platinum." The same author says that "many dentists object to using mercury enough to make an amalgam plastic, for the reason that in pressing out the surplus a large percentage of the metals will be carried with it. This has no foundation in fact, as experiments have proved that only one five-thousandth of one per cent of gold and the same amount of silver, and only a trace of platinum too small to estimate, is pressed out of a mix of amalgam containing 480 grains. This is so small that there can be no objection to using all the mercury required to make a sufficiently plastic mixture." Two or three years ago I extracted a tooth containing an amalgam filling in good condition. The patient said the filling had been there over thirty years. Please compare this experience (and I have no doubt that most of you have had similar ones), with a statement made by the late Wm. H. Atkinson, who says: "I have seen fillings that were made by this Herbst method *over two years ago*, by Dr. Bödecker, and they have stood hard service without showing any evidence of disintegration or leakage. How many of us can say that of fillings made by other methods?"

This seems to me a remarkable statement to be made by such a man in such company as the New York Odontological Society. Among the later comets in the amalgam universe we find copper amalgam. It came well recommended, and was used freely for a few years. A great deal of difference was observed in its working and behavior, and many abandoned its use and have filled a great deal of space in the journals decrying the "dirty stuff," as they are pleased to call it. I think, however, that no more rage has been vented upon it in proportion to our members, than was spent upon what we call standard amalgam, by our fathers in the profession, and even now Dr. Hewitt, of Chicago, says it will, if properly used, stay where placed without cupping, washing or perceptible shrinkage. It will not stain tooth structure, nor will it discolor contiguous gold fillings, and a writer in the DENTAL REVIEW for July, 1893, says: "How much has been said on the amalgam question and how much more is needful to be said, that we may see a larger profit from its use? According to the present standard of knowledge we can't do without amalgam." And Dr. Bogue says: "The differences that I see in many amalgam fillings are simply the differences that I have heard hinted at this evening—defective manipulation—occasioned through our own impatience or the impatience of our patients, the inaccessibility of the cavity, or the lack of time."

In closing I think I can make some statements with which you will agree. First, that it is very desirable to apply the rubber dam in nearly all cases for amalgam fillings. Second, that the amalgam should be worked *dry*. Third, that in cavities on distal surfaces back of the first bicuspid, the amalgam fillings of average operators perform better service than the gold fillings of the same operators in the same places. Fourth, that a great many men who will not admit it are *average operators*.

THE DENTAL CONGRESS.*

BY J G. REID, D. D. S., CHICAGO, ILL.

In summing up the results of the recent Dental Congress, an interrogation is presented thus to the writer. Have we (the profession) been benefited and highly instructed by this noble gathering? The answer to my mind is, in some respects, *yes;* in many, *no.* From the standpoint of fraternization the hopes of the visitor were fully, if not more than realized.

The controlling machinery of the congress, the officers, apparently did all that could be done, or at least all within their power to bring about the highest results obtainable. We must not lose sight of the fact that the organizing of such a congress was a gigantic undertaking, and it was naturally to be supposed that many things would be left undone that ought to have been done; and many things were done that it were well to be left undone; and just at this point is where the writer discovers that the machinery either jumped a cog or lost a wheel, and it is not for him to say which. To an unbiased critic, it will be observed in looking over the transactions, taking the sections as they come, a few of them furnish the reader with a little pabulum to digest, and a few with not even so much as a smell, among the latter of which is the section on Dental Materia Medica and Therapeutics.

Many of my hearers have read, or heard repeated ere this a saying, "There is nothing so unpalatable and stale as a cold pancake, unless it is one warmed over." Now, if there is any one present who attended that section throughout, or who has taken the pains to read the subject matter presented, will conscientiously admit that it has added stock to his information, then I will answer by saying he has not been well informed.

Certainly no one possesses a more kindly feeling, or will take a more charitable view of the situation than myself, but when we see such a deplorable lack of profitable scientific ammunition, the question arises, why is it? There is not the scratch of a pen from our *ablest* scientific investigators, men who have made life-long studies in this department; is it possible they have renounced allegiance to so distinguished a cause? We hope not. I fully expected to receive some new instructions on the treatment of pyorrhœa. What did we get? An old pancake warmed over. I am awfully afraid that many returned home with the cocaine habit well established. The man possessed with a laudable ambition to extract teeth will be fully equipped to carry on the business on a larger and grander scale than ever before. I could go on enumerating criticisms for some time, but will close with a final question. Is the literature and scientific work of each department up to the standard of the body producing it?

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* Read before the Chicago Dental Society.

DON'TS IN CROWN AND BRIDGE WORK.*

BY H. L. CRUTTENDEN, D. D. S., NORTHFIELD, MINN.

This is the crowning age of dentistry; it is the time when one branch of dental science, at least, seems to have reached its acme of perfection.

Where once the ready hand would tear from its anchoring the aching member, now that hand is stayed with the injunction to spare that root. It is permitted to remain and wear a golden crown, to be looked upon by its more fortunate companions with envy. In many cases reversing the old adage, "Uneasy lies the head that wears the crown."

Then there is that vacancy where decay has got in its deadly work, where naught remains but the memory of the pangs and torments of an aching tooth, the days of labor and the nights of unrest, struggling with the question, to have it out or not? Then to succumb at last and have it out and get relief, only to find, after the clouds have rolled away, the vacant places. But, happily now a golden bridge can span the abyss of past misery and carry on the functions of those gone before.

A Crown that will not decay,
  With a covering made of gold,
Where bacteria holds no sway,
  But is left out in the cold.

Excuse me! I do not intend to treat upon bacteria, microbes, poetry or chestnuts, neither do I intend to tell you how to make crowns or bridge work, for you know that perhaps better than I can tell you; neither do I intend to give ideas or methods better than others, but only those that in my experience I have found best. I do not intend to tell you what to do, the exact course to guide your ship, for the ocean is wide and you can sail where you please, but to point out the rocks and shallow places, where you should not sail or at least where I do not care to go. So for a few moments I will try and tell you what you should not do in the construction of crown and bridge work.

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*Read before the Minnesota State Dental Society.

Don't advise crown or bridge work unless there is a fair chance of their proving a success, for one failure will count against you more than one hundred successful cases.

Don't let the glimmer of the gold dollars blind you, but have courage to say no, when an uncertain case is offered.

Don't crown a tooth when it can be filled with a good prospect of saving it permanently.

Don't place a piece of bridge work before the parts are properly prepared, all roots removed that are not to be needed for anchorage, and the jaw sufficiently healed.

Don't set a crown permanently until you have previously sealed the apex of the root, and know that it is all right. If there should be trouble when first sealed let the filling have the blame, not the crown.

Don't set a crown permanently until you have good cause to know that the root is in proper condition, take time if there are doubts, and fill temporarily, if necessary.

Don't practice immediate root filling unless you have better luck than I have had. I have done it in many cases but once too often.

Don't attempt to fit a band unless the root or tooth has been properly shaped, all overhanging enamel removed, the walls ground to permit a band to fit nicely to the root without overhanging and irritating parts under the gum.

Don't permit the band to set too far under the gums, also do not let any part of the crown or root be uncovered.

Don't set a crown unless you have good anchorage by tooth crown, pins, posts, or screws.

Don't attempt to make a bridge without having two or more good roots or teeth to anchor to. No bridge can stand unless it has good abutments.

Don't anchor a bridge by bands or half-crowns. Let me read this over again; don't anchor a bridge by bands or half crowns.

Don't hesitate to incise the incisors or cuspids if necessary, to do so by the heroic method, extracting the pulp alive; there is little or no pain when the pulp is healthy and it is done properly.

Don't crown the anterior teeth with gold making an advertising bill board of a patient's mouth.

Don't use ready made gold crowns; you cannot properly adjust them to the roots, the adjoining teeth or the occlusion.

Don't leave porcelains unprotected, but put a thick facing of gold upon the grinding surface.

Don't make a bridge without having it self cleaning.

Don't depend upon the gum to help support a bridge.

Don't trust a bridge that has too much curve in the arch, the leverage of the curve will cant the teeth anchored to.

Don't anchor a bridge by inserting a pin or bar into an adjoining tooth or cavity and expect the filling or anchorage to be permanent.

Don't extend a tooth far when attached to a shell crown. In such a case have the band heavier, and never extend more than one tooth.

Don't depend upon the band alone to anchor a porcelain faced anterior crown without having pin or post inserted into the pulp chamber.

Don't set a crown or piece of bridge work when you know of a flaw in the work that will be likely to endanger the durability of the case. It is better to correct it before it is set, rather than have to remove it.

Don't permit sudden change of heat in soldering with porcelain, but heat and cool off gradually.

Don't be careless in backing porcelain; use platinum or pure gold, and see that the edges are even and close fitting.

Don't use thin gold for the grinding surfaces, swedge from thick gold or fill well with solder, so as to form a lasting surface; be honest, be generous, and you will have your reward.

Don't lose sight of the fact that the articulation is one of the most important points in the construction of a bridge, for its durability and permanency of anchorage.

Don't lap the ends of the band, but place them end to end, then when they are finished there will be no seam or unsightly ridge.

Don't place the solder on the outside, but in, where it will not show, and help strengthen the parts joined.

Don't use gold with much contrast of color; have the solder as near in color and karat as possible.

Don't use pure gold for grinding surfaces, or in places where there is much wear.

Don't use soft solder in any part of the construction or in repairs.

Don't use tinned binding wire in soldering, but small iron wire, then the solder will not unite with it so readily.

Don't waste your filings or scraps, but keep clean and remelt, getting steel filings, etc., out with a horseshoe magnet.

Don't put the steel pliers or instruments into the acid you use for removing the oxidizing of the gold. It spoils the color of the gold and the instrument.

Don't flatter yourself that a gold crown made to resemble a cheese box is better than one with the proper cusps and contour.

Don't set a crown to a root or tooth that is not dry and expect it to stay.

Don't leave a hole through the grinding surface of a shell crown to permit the excess of cement to escape. It is not necessary.

Don't leave cement under the gum or between the teeth to harden and produce irritation.

Don't fail to join the Dental Protective Association of Chicago. "In union there is strength." It will do you no harm, and it may do you good.

Don't permit me to burden you longer with what I don't know.

PROCEEDINGS OF SOCIETIES.

Chicago Dental Society.

Regular meeting, October 3, 1893, Dr. Joseph W. Wassall, President, in the chair.

Under the head of "Office Practice," Dr. J. G. Reid read a short paper on "Pyrozone," and exhibited two atomizers.

The subject for general discussion was "Impressions of the World's Columbian Dental Congress," the discussion being opened by Dr. E. L. Clifford.

Dr. Clifford: Dr. Wassall, the President, called on me a week ago, and asked me if I would consent to say something upon my impressions of the World's Columbian Dental Congress. I told him I thought he could have selected a member of this society more competent to give such impressions. As it is well known to most of you who attended the congress, it was my misfortune to be upon one of the committees, and if any of you were on committees, and had anything to do with the Dental Congress, and attended to the duties of your respective committees, you are probably well aware that you got very little opportunity to take any advantage of the literary treat that was in store. Especially was this so of the registration committee, as it debarred its members from the privileges of the congress so far as being present at the sessions and taking advantage of the discussions, or being able to get any benefit from them except as they will get in a general way, from reading the reports of the various sections as published. The registration committee, however, had a duty to perform, and I have no doubt that to the united efforts of that committee some of the benefits of the congress may possibly be credited. For instance, they kept the position of what may be termed "the watch dog."

Dr. HARLAN: Scrutinizers.

Dr. CLIFFORD (continuing): It was our duty to see that every person who presented himself and asked admission to the congress, was eligible to admission according to the rules that had been laid down by the Southern and American Dental Associations, the two principal bodies from which this organization emanated. There were a great many pleasant things connected with it, and some unpleasant things. There were a great many ludicrous incidents connected with it that possibly no one but the members of the registration committee will ever know, or will be able to appreciate. There were some kickers. They came and got their names upon the registration list before we knew who they were, and those most anxious to get their names on the registration list sent them in very early. Some of them came as early as January, six or seven months prior to the opening of the congress, because they wanted to be there and to get in, and it was not until the members from the different States arrived here that it became noised about and known to the registration committee, and these points were brought before the membership committee and action taken upon them. In some cases it was unfortunate to be delegated to perform that duty. I know that each member of both the registration and membership committees felt that they had a duty to perform, and they went on the principle of obeying orders. Whether they had a right to do this, of course rests with the officers of the congress, and those who laid down the rules for them.

So far as dwelling upon anything connected with the organization of the congress, or how it was organized, I am satisfied to dwell on these points at this time would be superfluous. Those of you who have the immense volume of *The Dental Cosmos*, THE DENTAL REVIEW, and other journals that have published as much of the proceedings as they could, know what was done in the various sections, and how the subject of organization was covered in the President's address, in the welcoming addresses, and the responses that were made by the different members. The President in his address, mentioned the dental colleges, the dental journals and associations. It has sometimes occurred to me while reading the address that it might have been well to have reversed the order of seniority; that we possibly had dental associations first, then journals, and then colleges. Now, we look upon the colleges to carry out the work that has been laid down by our journals and by the associations. The success of the congress numerically was apparent to every dentist in the English-speaking world. When we take into consideration the condition of the money market at this time, it seems to me wonderful that so many could be gathered during any one week in this World's Fair year. To think there was twenty-seven countries, I believe, represented, with the bright lights from each country, and each one seemed to be fully bent upon making the congress a grand success, each one apparently having no axe to grind personally; each one seeming bent to learn something, and to add his quota to the general fund of information, it is astonishing. One man told me that he traveled 16,000 miles to get here, and the distances of various members ranged all the way from that down. It seems to me wonderful that so many could be gathered together under the circumstances, and the whole matter circumscribed by the word, "ethics." It was a demonstration to the outside world, as well as to the members of our profession, that it was essentially a congregation of what may be termed "ethical men," those who had the advancement of the profession uppermost in their minds and entertained the belief that the profession should be upheld at any personal sacrifice.

To say anything in this audience as to the self-sacrificing work done by the different officers of the congress and the members of the several committees, would also be entirely superfluous. It is only necessary for me and the members of the whole profession in Chicago, to refer to the unceasing efforts of our Secretary-General and to ask you to reflect upon the immense amount of work done by him. I cannot recall or think of any one man in this country who could have been selected, whose vast information, knowledge of foreign men, knowledge of the condition of the profession in all countries, whose familiarity with the different languages, whose capacity to meet and welcome the officers, no matter from what country they came, who could have done the work and led the congress on to the success that the Secretary-General did. (Applause.)

Now, as to the effect on the position of the profession. I am well aware that this is dangerous ground. Possibly the Chicago Dental Society from its reputation and its well-known possession of many of the bright lights in the profession, knows that there are two strong sides to this question. Possibly the main question that has arisen all over the world, and the only one that I have been able to gain any information upon which there are dissensions, is whether dentistry is a distinct profession, or whether it is a specialty of the general profession of medicine. This point, unfortunately, was very briefly discussed in one of the general sessions of the congress. I saw very little in the reports about it and tried to find out what there was said on it. I suppose it will come out more fully in the transactions when they are printed.

There is one point I want to throw out. You are all well aware that I do not possess the degree of M. D., therefore can speak impartially. The only degree I do possess is that of D. D. S. In looking over the programme and the names of those who added interest to the discussions, of the entire number of dentists, or of representatives we might say, as near as I can gather from the reports, there were about thirty-seven altogether upon the original programme who took part in the discussions, and of that number there were thirty that possessed the M. D., the master of arts, or the batchelor of science degrees; in other words, they had other degrees, showing a broad, liberal and scientific education outside of their own special degree. There were twenty-five of them who possessed the M. D. degree alone, without any other degree than the D. D. S., or L. D. S., or some other dental degree. There were fifteen who had the D. D. S. alone or some other dental degree. It strikes me that this is a rather small proportion of the strictly dental degree holder.

The President in his inaugural address classified the condition of the profession at the time of its birth, that is, of its recent scientific birth from 1839, dividing it into three classes a good deal in the same manner in which they themselves are divided, the final result being this: those who were educated simply for dentists; those who had taken up dentistry after having been educated in medicine or some of the collateral sciences, and those who were physicians practicing it as a specialty of the profession. In the third class, which is very small and possibly about one-eighth of the whole number, he goes on to say that these few were the leaven which was to redeem the whole mass. I throw out these suggestions to bring out, if possible, some discussion. I am a firm believer in a broad, liberal education. I believe that those of us who read the papers that were read before the congress and the discussions on them, must realize the importance of a broader education among those who take up the specialty of dentistry. How can we be expected to understand the deep, intricate, scientific papers, as some of them were that were read before the congress, if we only have the information that in former years was thought necessary for the average dental practitioner? I would not be placed in the category of those who believe it essential at this time that a man, before he was allowed to practice dentistry, should possess the degree of M. D. So far as the degree is concerned, I do not fight for it, but I do believe that if a man is a good dentist, as it is understood to-day, with a broader education and a proper grounding in the fundamental sciences of medicine, he will be a better dentist, he will be able to do his patient better service, and he will certainly be able to render his profession better service by elevating it and giving it a broader position before society and the public, than he would without that education.

Another point that interested me a great deal, and I think is going to be of benefit to us in the future, is that we had the opportunity of seeing the men we so often read of in our dental journals. My impression is much better, and I retain what I read, if I know the man who has written the articles. I saw in this congress some men that I had never seen before. I know now how they look, and how they talk. On the other hand, I saw some gentlemen there and talked with them that I had seen, but knew very little about, and who interested me very much, and I shall be anxious to read anything I see their names attached to in the future. I shall get more benefit from my journals hereafter from having attended this congress than I otherwise would. I was greatly disappointed in some men that I heard talk as I spent a little time in one section and a little in another. In this way, I managed to hear some of our BIG men talk, men whose names we see in the journals so often. My ideas were changed considerably in regard to their capacity.

I might close by saying that I am fully satisfied that the existence of the World's Columbian Dental Congress in this city has certainly added a mile stone to our progress. I believe it is absolutely necessary in the future that once in a while we have a congress of dentists, for dentists, by dentists. I believe, however, that we have a field in which to work in our profession as it is broadening, that cannot be done in such a congress, and it is absolutely necessary to have other societies that are connected with other organizations, and that they should be upheld by the profession. In short, we should be eclectic to the extent of gaining information from all sources where we can get it, and we can certainly derive much information from sections in different medical organizations. Those of you who have attended meetings of medical associations having dental sections, will bear me out in this matter.

Dr. A. W. HARLAN: The World's Columbian Dental Congress has spoken for itself. After listening to Dr. Clifford it seems hardly necessary to say very much except to amplify some of the points he has made, but the congress as a congress will have to stand or fall on its own merits. Since the adjournment I have spent one week away from Chicago looking over the papers and discussions, as it was utterly impossible for me during the week that the congress was held, to listen very much to papers that were read or to the discussions. I have been very much gratified in quite a number of sections to find that the discussions are better than those that have been published by the journals, especially by *The Dental Cosmos*. That journal had some trained reporters and six or seven untrained ones, who were unfamiliar with the technical terms used by dentists, and very frequently what was said was so totally twisted around as to fail to express any meaning. It may be true that there were some frivolous discussions in some of the sections, and it may be true that some of the papers that were read were not worthy to be considered as theses for prizes, but taking them as an *exposé* from different countries and localities, it gives an opportunity to compare the methods of expression and of thought, and the amount of acquired knowledge from those localities which will have a tendency to fix the real centers of information for the future. One of the things that this congress has done decidedly, positively and unequivocally, is this: that it has set up a wall of such breadth, and with such a foundation and of such a height between the ethical and nonethical dentists, that it will take a great deal of charlatanism to pierce, penetrate, or to get over it in the future. (Applause.) If the congress had done nothing else than to have an assemblage of men and women in Chicago for the purpose of establishing in the popular mind what is considered ethical, it would not be considered a failure. And then again, the influence of the congress on the minds of the teachers, writers, and visitors from foreign countries, will be in one respect of great benefit to the whole mass of dentists. Teaching will be modified, improved, and perfected in countries where now dental education is very defective, and where methods are scarcely known. No one can tell the influence that this congress will have on the teaching bodies in Canada, in France, in Germany, and in other countries where there are dental schools. Of course, it is pleasant and agreeable to every one to know those who have written and read papers, and whose names you have become familiar with through the journals, and this allusion is made that too often your preconceived notions have to fade away in some instances and in others they become aggrandized. That is one of the experiences of human life. We find a person pleasant to meet, but two or three months afterward you discover you have made a mistake, and dentists are just as apt to be mistaken as other people.

With reference to the point raised by Dr. Clifford about the authorship of papers, I will say one thing in that connection, and it is this: The authors of some of the papers live in countries where there are no dental schools and no dental degrees. They have not acquired the dental degree from the country where there is a teaching body that confers it, they have usually taken the degree of M. D., and consequently when they read a paper they read it as Muggins, M. D. There are a great many countries where there are no dental schools; for instance, in the case of Dr. Caracatsanis from Athens, it is not possible in that country for him to obtain the degree of D. D. S., because there are no schools to confer such a degree, nor any dental degree. Hence it is a necessity for him to be an M. D. in order to practice legally. In Austria we had Zsigmondy, Schreier and several other gentlemen, but they do not confer any dental degrees in Austria, hence these men who have education and who take rank as scientific dentists, have been educated in medicine. In Germany, until very recently, they had no dental schools, but now they have them in Breslau, Halle, Berlin and other places, but they do not confer a D. D. S. title. Very few of these gentlemen have figured as authors of papers; in France a governmental degree has been conferred on ten or a dozen of a dental character. I do not remember the abbreviated title; at any rate, it is not D. D. S., or L. D. S., or anything of that sort So if they have appeared as authors of papers they came as M. D.'s. In England it is L. D. S. You must remember that the international amity between the United States and England was completely and officially severed before this congress was opened, and consequently very few Englishmen were here. They all expected to go to Rome, but the Rome Congress did not materialize, so that they got beaten out of both congresses. I might say that this will explain one of the reasons why so many men having M. D., read papers. There were fifty-seven papers instead of thirty-seven, as stated by Dr. Clifford, and about twenty of them were added to the general programme.

I want to say, gentlemen, that I am perfectly willing to bear the criticisms that our esteemed friend, the editor of the *International Dental Journal*, is pouring into the officers of the congress, the executive committee, and to everybody connected with the congress. It is not possible that everybody can be satisfied. It is absolutely impossible that a congress can be organized and conducted so as not to step on somebody's toes or hurt somebody's feelings, although the organizers of the congress never had any intention of doing anything of that kind. They were doing what they thought was for the best interests of the congregation of dentists that would assemble here. Criticism is a good thing, but to condemn *in toto* everything connected with the congress and call it "a mass meeting of dentists" is rather stretching a point.

One of the things that was presented before the congress, when it is published, and which was not read entirely, will so raise the dental profession in the estimation of the scientific world, that they will forget that the clinics may have been held in rooms where the ceilings were not very high, or where there happened to be bad ventilation. These little frictions will be entirely forgotten, because there is a paper that *The Dental Cosmos* has not published, nor any other journal, that was prepared by Dr. G. V. Black, of Jacksonville, Illinois, that will be for all the future authors of the next generation a guide and an authority on nomenclature. It is one of the most studious and laborious efforts that has been presented to any dental society where the subject was not strictly scientific. You might say the coining of terms, the classification and collection of them are a part of science, although it is not so considered. A great many people think that science consists of demonstrations in histology, bacteriology, physiology or chemistry, and properly that is true; but this is a report with a bibliography that will be worth two or three times the price of the ten dollars which you have paid to get into the congress. I have looked over the tables, and I feel that every author, teacher, and editor who has the slightest inclination for literature will be benefited by being able to consult this work.

Dr. Clifford has spoken about the financial difficulties. The financial stringency was a great bar. One of the reasons why there were not more dentists visiting the congress from the United States, was because they came to the World's Fair in May and June, and they all expected to come back in August, but they found their banks had failed, and had locked up their funds. I know of some men who had five or six thousand dollars, not a thousand miles away from Chicago, who were absolutely deprived of money enough to come to Chicago for a week, and so could not take a part in the proceedings of the congress. Thanks to the spirited dentists of Chicago who were on committees and who did their work well, some nearly omnipresent, they deserve a great deal of encouragement and praise. When we take into consideration the number of dentists pouring into this city steadily since the first of April and searching for the offices of dentists, and if they did not see them at the office they did somewhere else, you can readily see what a great tax it must have been on the time, patience, and on the pocketbooks of resident dentists in Chicago. I am very glad to know that they have stood the test so well, because if you use up a man's time you deprive him of income, and I know a great many dentists who told me that they spent from one-quarter to one-third of their time every day for the purpose of entertaining visiting dentists.

In the city of Chicago there were 141 members who joined the congress. That is gratifying, and meant that every one of them had to put up $10, and some $20, and others a great deal more. On that ground, I am proud of Chicago.

One of the things that contributed to the success of the congress, in spite of any criticism that was intended to be malevolent, is that Chicago was considered the marvel of the age, and everybody that came here went away pleased and satisfied. If they did not go to dinner parties and receptions, and conversaziones, they felt repaid by visiting the parks, looking at the streets and boulevards, and above all that wonderful creation at Jackson Park. In view of all these attractions, and in view of the fact that there were so many things that could be done by men visiting the congress, we had on the closing day one of the most impressive ceremonies that it has ever been my pleasure to witness in connection with a congress. I have attended several congresses, but when the Columbian Dental Congress closed, there was a large audience in the body of the hall, more than one-third of the whole membership of the congress being present at that time, and they staid there from eleven o'clock until nearly one, and listened to the various speeches; while at Washington, where there were 3,300 men at the opening of the International Medical Congress, on the closing day there were not more than 100. Out of 1,125 members of our congress, there were 400 present on the sixth day. If that does not show an undivided and unflagging interest, I do not know of anything that does. (Applause.)

Dr. Louis Ottofy: As I have to leave the hall in a few minutes, I wish to make a few brief remarks embodying my impressions of the congress. At the last meeting of the Chicago Dental Society, the subject came up in regard to what foreign dentists had done for dentistry, and I endeavored to make a feeble attempt to defend foreigners for what they have done for dentistry. The proceedings of the congress must certainly convince us all that foreigners are doing a good deal for us. The majority of the papers that were selected to be read before the general sessions were by foreigners, and many of the most interesting papers in the sections were by foreigners, and the medal for the best essay was given to a foreigner. I say this with all due deference to American dentists and American dentistry.

I wish also to say a few words in regard to a matter that was to come up, but did not, during the congress. Dr. Claude Martin, of Lyons, France, has for fifteen or twenty years devoted the best days of his life to the development of something that, in my opinion, has been almost entirely overlooked in America. It is what he terms "Immediate Prosthesis." He has exhibited at the World's Fair—and, by the way, that sort of thing is not considered out of the way in Europe—practical cases of surgical appliances to illustrate his method of practice. He has a case there containing some of the most interesting things that one can possibly see. M. Chas. Godon, of Paris, France, was to get these cases and bring them before the congress, but the time was so short that he could not do so. I was to take them with me to-night, to Worcester, Mass., to present them before the New England Dental Society. For the last week I have been endeavoring to secure them from the custom house and World's Fair authorities, but without success.

In case of any operation where, for instance, a part of the lower jaw is to be lost, Dr. Martin makes a full lower jaw of rubber, making it in two sections which can be joined in the center. As soon as the surgeon hands him the piece of bone that has been removed, Dr. Martin takes out of his rubber jaw a section corresponding identically with the piece to be inserted, and this is inserted between the fragments of bone, holding the parts in position, and giving the patient more comfort than he could otherwise have, and eventually preserving the appearance of his face, leaving it as perfect as before the operation. He has on exhibition, some beautiful cases where almost the entire lower jaw has been replaced by one made of rubber. He carries it even farther. He has made an upper jaw for both sides, replacing both the maxillæ, malar bones, and the floor of the orbit. In one instance, where the face was badly injured, practically destroyed, he has made an artificial nose, an artificial upper jaw, a part of the lower jaw, the malar bones, and the entire upper maxillary bone. He goes even farther than this. For instance, where for any reason the tongue has been amputated, he attaches an artificial tongue made of hollow rubber filled with water, to the lower plate, holding it in the floor of the mouth.

The artificial noses he has on exhibition are made of porcelain. It was surprising to me to see how well nature has been imitated, in some cases even warts are reproduced upon the nose, looking quite natural.

He has also artificial ears on exhibition. If you have ever noticed a man with one of his ears off, you will know that it is an unsightly blemish.

Regarding the artificial jaws, he has an ingenious method of drainage through the artificial maxillæ, by means of tubes that have been made through the entire apparatus, so that the patient can (by attaching a rubber tube) inject antiseptic solutions, and cleanse the soft tissues surrounding these artificial substitutes.

I would advise all of you to go down and see these exhibits. An attempt will be made to describe them, and illustrations given in the transactions.

[It was later announced that Dr. Ottofy would be at the exhibit Saturday afternoon, Oct. 14, with the key to the cases, so that the specimens may be more closely examined by members of the profession. Quite a number of dentists availed themselves of the opportunity.]

Dr. W. MITCHELL, of London, England: After listening to the remarks of Drs. Clifford, Harlan and Ottofy, I do not think there is much left for me to say. In speaking of the subject under consideration, I shall give my own personal experience in connection with the merits of the congress, and I desire to say that I was highly gratified with everything I saw and heard. As to its success, I simply re-echo what Dr. Harlan has said. It can certainly afford to stand upon its record.

In supplementing Dr. Ottofy's remarks in regard to the exhibits at the World's Fair, I had the privilege of looking over the collection of which he speaks, and I will say in its completeness and uniqueness there is scarcely anything in connection with comparative dentistry or the branch of operative surgery, when a person considers it from the standpoint of illustrations of models, that will compare with it. We see all kinds of cases of facial deformity, produced by injuries and diseases, that are remedied there and most beautifully. Photography has been called in to show in a great many cases the benefits that patients have derived. It is quite common to see in connection with a great many of these cases statements, made by operators and exponents of these beautiful works of art, which undoubtedly they must be classed as, that are considerably overdrawn. Photography is one of the most exact things we have in connection with this part of our profession, and we have men now engaged in this line of work who are geniuses. Their capacity for this work is almost phenomenal. The results we see in photographs and illustrations are wonderful. When I am asked to believe this or that in the future, I shall be able to accept almost anything after seeing what I have seen at this congress, and in connection with this exhibit at the World's Fair. This work is being, to quite an extent, ignored in this country, and France has made the greatest development and progress in this respect; but there are those here who undoubtedly will profit by a visit to the World's Fair and seeing these models.

I was much struck by the class of work that our friend Dr. Case is doing in the restoration or modification of what may be classed as hereditary deformities. It may be they are hereditary troubles, or it may be a modified condition of force by impaired nutrition, or modified through a peculiar phase of nursing. I do not know whether Dr. Case has gone into the subject of the methods of nursing producing these facial deformities or not, but it certainly affords foods for reflection in connection with these peculiar cases. The models we saw at the World's Fair were the result of either disease or accidents. In his cases they were undoubtedly modifications brought about by external influences, hereditary troubles, or diseases, and his line of work is to correct them. In connection with his work he will be able to utilize these points I am sure, and we shall all go away benefited by coming in contact with these practical illustrations, as well as theoretical advantages derived by being visitors, and coming in contact with the broader and brighter minds of the profession, and by their operations, papers and friendship we shall go back to our work refreshed for having enjoyed your company.

Dr. Peach, of Sydney, New South Wales: I regret that I cannot give you my impressions of the congress in a way that would be entertaining or profitable to you, for the simple reason that the banks in our country failed. I intended to have been present at the congress, but my bank said I was not to be here.

I thank you very much for the very kind invitation to be with you to-night. We have a society in New South Wales, something like this, and hold our meetings monthly. We are not as strong as you are numerically. We have one hundred and eighty-three practicing dentists in our town, and of that number one hundred and fifty belong to our society. Unfortunately we have not as yet received the assent of our government for a law regulating the practice of dentistry, but within a short time, perhaps during the present year, we hope that the act which is at present before the House for consideration will have become law, and that act when it becomes law will be one of the most stringent laws in the whole world. That has been the action of our dental society, and that was the object for which it was formed, and we are glad to say that we are looking forward to success in that direction.

Gentlemen, I thank you very much for your kindness to me to-night, and I hope sometime we may see some of you in New South Wales.

Dr. E. M. S. FERNANDEZ: I desire to say a few words in behalf of the Spanish members, but before doing so I want to say a few words in regard to the congress. We ought to be very proud to hear such expressions in regard to its success. I believe the time for us to judge of the work done will be when we get the printed transactions of the congress. It is impossible for us to begin judging of what had really taken place, when we consider that no one man was able to attend really one section; therefore, it seems very premature to try to judge the result of such a grand union as the World's Columbian Dental Congress.

The main reason why I rise is this, that after the congress was over I had the pleasure of receiving the Spanish gentlemen in my house, who kindly invited me to a small banquet which they gave me at the Palmer House, saying that I at least claimed the honor. For a long time afterward I felt extremely grateful for their kindness. When they came to the city, two of the gentlemen called on me, and were very much put out after the first day of the congress, on account of the clinics. They claimed that the clinics were very dry and uninteresting at first, but afterward they told me that they were well pleased with the congress, and especially with the dentists of Chicago, and that if they had to go a hundred times the distance, they would do it. These remarks coming from Spanish dentists were extremely gratifying to me, and when we consider that their country was better represented than any other, I think we ought to feel very highly honored.

Dr. Nels Nelson: I have had many thoughts of the congress since it ended. The enterprise of the dentists of this country is such that this congress was merely the result of it. The foreign dentists that were here were so impressed that they will return to their countries and spread the knowledge that they have gained here, and also point out the necessity of establishing dental schools all over the world, and I believe that we shall read more about this feature of the congress in the future than of anything else.

Dr. J. H. Woolley: John Fisk makes a statement in his book on the "Discovery of America" that, although there had been discoverers preceding Columbus, yet the latter exerted a wider influence in the old world as a discoverer than those that preceded him, by calling their attention to its great possibilities. The prophecy has been fulfilled, and we have realized a splendid civilization that followed. Growing out of it is celebrated, in honor of our great discoverer, the inauguration of a World's Fair, which has marked a great epoch in the nineteenth century. All that calls for the mechanism of man, all that calls for the arts, all that calls for the stimulation of commerce, all that calls for literature, and a parliament of religions has been answered, these qualifications being the remarkable advancement of humanity's best thought. Among the important achievements growing out of all these were the world's congresses, and notably among them that of the World's Columbian Dental Congress.

The question under discussion to-night is, what of our impressions gained from this meeting? This congress to my mind marked a great epoch in our dental history, the magnitude of which will only be understood in the time to come. If we were to go back in history among some of its great epochs that occurred in Burke's time, when he was in parliament, we would note three great epochs. The first is the spiritual, the second the industrial, and the third the philosophical, each epoch fitting into the other like the stones of the builder. So as regards the dental congress, it marked a new epoch in our history similar to that of other epochs. We cannot properly estimate, so much what we have heard by way of papers and discussions, its best work being what will grow out of it. There have been friendships formed, knowledge and experiences interchanged. This association with our *confrères* gave us or ought to have given us a more cosmopolitan mind. By this association we are led to measure ourselves with our superiors. It has helped to eradicate from our thoughts the ego and self-assertiveness of dogmatic opinions. To use a fitting quotation, "This congress was like a powerful ferment unlocking vast reservoirs of force in various directions, and thus alters the whole character of our environment, very much as the introduction of a new species may alter the character and relation of the fauna and flora throughout a whole neighborhood."

One who has the true insight and tries to work below the surface of things cannot fail to discover the force of the above quotation. The most hopeful view I had of this congress was to set the powerful ferment and unlocking of the vast reservoirs of strength in minds that were preparing for this great occasion. Unlike as it was two decades since when scientific knowledge was less disseminated, the thoughtful and better educated dentist of to-day came to this congress intellectually prepared with an open mind to receive truth and assimilate it. We are apt to overlook some of the quiet forces that are sometimes the most potent influences. One of the most important factors that helped, in fact created the success of this great dental movement, were the gentlemen who had it in charge. We cannot under estimate the valuable work they performed, the long days of toil and parts of nights, the anxiety they felt in carrying out the greater to the lesser plans, and when the button was touched the vast machinery started smoothly, and they awoke to the realization that our brightest dream was fulfilled.

Dr. C. E. Bentley: In reference to the subject which is announced on the programme, I have very little to say other than that I have been using *pyrozone* since the congress, as a bleacher of teeth, not with the atomizer as recommended by Dr. Rhein, but with an instrument that has been recently shown among dentists, the name of which I cannot recall just now. It is an instrument that has a rubber cylinder and copper bulb, and a point extending from the bulb. By heating the copper bulb it will expand the medicine in the rubber cylinder, causing a very fine spray to come from the needle. It occurred to me recently after using pyrozone, that it would be a useful instrument to drive the molecules of pyrozone into the tubuli, thereby bleaching the compounds that are in these small canals. I have used pyrozone for bleaching teeth with this instrument as many as four times since the congress, and I have been surprised with my results. I bleached a tooth to-day more as an experiment than anything else. After adjusting the dam and scraping away the decalcified dentine, I used pyrozone for at least twenty minutes, and to my astonishment, and to the satisfaction of the patient, it bleached it successfully for the time. I filled the tooth for the time being with cement, awaiting results. So much for pyrozone.

In reference to the congress, Mr. President, if you will bear with me, I would like to say a word or two regarding it. The Secretary of the committee on papers for this society asked me at the beginning of the present season to prepare a paper, and I suggested to him that I thought it would be a good thing to give my impressions of the World's Columbian Dental Congress. It is announced for January next. So when I saw it announced, that the subject was to be discussed to-night, I thought it would be a good idea to come down and learn what I could of the impressions of the different members. I am very glad that I came, and that sufficient material is left for any person upon which to write a paper. A good deal has been said regarding the congress this evening. One of the important influences of the congress has escaped recognition I think. Do you realize that the immense benefits of this congress have not been for the benefit of foreigners only, or for those who live in Chicago and elsewhere in this country, but I think its history will tell in a most forcible manner of the impressions that have been made upon the younger element of the profession. The younger element of the profession thoroughly patronized the congress ; they thoroughly absorbed the best fruits that were offered by that gathering. The seed was sown there, and it is to bear fruit. If any person, or set of persons, were interested in the congress, it was the younger element of the profession. The young men had to sit and listen to the great lights of the profession.

If I were to reduce my remarks to specialization, I could not pay any greater compliment to any paper that was read than the one presented by Dr. Whitney, of Honolulu. It was a wonderful revelation. To think of the theories and the books that have been written, and set up and all overturned in his wonderful scientific paper ! And I ask the pertinent question, what will become of the great amount of literature that has been written upon this subject! It is germane to the paper written by Dr. Whitney. His paper opens up in my opinion a new field for investigation along the lines he has indicated, and his data seem to be incontrovertible. I shall have something more to say on this subject in my paper.

Dr. P. J. Kester: I do not know that I have anything special to say in regard to my impressions of the congress; they are in harmony with those of the gentlemen who have attended and spoken.

But Dr. Ottofy called our attention to an exhibit in the Anthropological Building and incidently Dr. Bentley mentioned the subject of Dr. Whitney's paper.

And I would suggest that any one who is interested in the study of skulls will find ample opportunity at the Anthropological Building to study those of many ancient people.

I mention this because there are doubtless some gentlemen here who have not seen these things, and those who are interested will find an opportunity for study and examination of skulls and teeth in the anthropological department of the World's Fair, that they may never have again. Take a look at them.

Dr. J. N. Crouse: I am totally unfit to discuss such a subject, because it was impossible with what I had to do to give the congress half an hour's time together. I had a mammoth scheme on hand, which has not materialized yet, but it was necessary for me to know something of how it was going to strike the dental profession. I spent nearly all of my time from morning till night in working on it to see whether I was in the right direction or not, and feeling the pulse of the dental profession. I called together two different meetings of the leading men from other parts of the country. I could feel the pulse of Chicago at any time.

The sessions made very little impression upon me, because if I attended one section for a short time I was pulled out by six or seven men who wanted to see me about something else.

I did go to the clinics, but it was the same there as at any other place. I could not get a minute to see anything without somebody wanted to see me about something.

As far as the congress itself is concerned, I was very much impressed with the closing meeting. I do not think any of the congresses that have been held in the Art Palace have been an entire success unless it is the Religious Congress. It has been the most immense thing the world has ever seen. The World's Fair was at the other end of the city, and with such great attractions and such a mass coming together, it was hardly possible, with so many things on hand, for a congress to do strictly scientific work. I believe that is the experience of the majority of the congresses. They were hardly considered a success from a scientific point of view. I doubt whether the Columbian Dental Congress, when you come to look it over carefully, will be considered as scientific as some other meetings that have been held; yet, considering the financial stringency, it was something to be proud of in point of numbers and interest. I believe, however, it was impossible for a great many to settle down to scientific study and listen to long papers and long discussions. It has got to be concentrated and simmered down to the essence before it will take.

The clinical department of the Dental Congress, as far as I could judge, was not as great a success as it might be, although it was impossible for me to give much attention to the clinics. It would have been much better if the clinics had been held in a larger hall, where there was no limit to space. I think if the committee had it to do over again they would select a larger hall for the clinics. I think the clinics at the twenty-fifth anniversary of the Chicago Dental Society were much better, as there was more room, although there were not so many distinguished men here.

Dr. C. P. Pruyn: Dr. Crouse has just been criticising unjustly, it seems to me, the scientific matter of the Congress, as he was not there to participate in the proceedings. I think his criticism is not fair.

Dr. Crouse: I said that my impression is that it was not as scientific as some other gatherings we have had, and at a time when there was no World's Fair here.

Dr. Pruyn: He spoke about the clinics. I am very sorry that it was not made known to the clinic committee that it was possible to procure a larger hall. That question was discussed early in connection with the arrangements that were being made for the meeting. It was thought it would be almost impossible to procure a hall suitable and large enough without great additional expense to the congress, and the Chicago College of Dental Surgery gave us their quarters free. It was the most available place that could be procured.

Some of the things exhibited were very interesting. The appliance exhibited by Dr. Jackson, for correcting irregularities, was to my mind very interesting, practical and instructive. The remedy used by Dr. Schreier—potassium and sodium—for the chemical destruction of putrescence in the pulp canal, seemed to me a very valuable thing, and in the limited experience I have had with its use since the meeting, I have been pleased with it.

The electrical appliances exhibited by Dr. Berry, of Milwaukee, were unique, and I think they open up to us a field of mechanical ingenuity in the application of electricity that will be of great service to us.

The instruments and appliances used by Dr. Hollingsworth, of Kansas City, were of great interest to all those who are crown and bridge workers.

The electric mouth lamp, invented and presented by Dr. Barrié, of Paris, France, was to me the finest electrical lamp that has been put upon the market. I suppose it will soon be on sale. I shall have one myself as soon as I can procure it. The appliance alone would be worth to us a visit to the World's Fair from a long distance.

Dr. MITCHELL, of London, England: I will say in connection with this electrical lamp, spoken of by Dr. Pruyn, that Dr. Patton had the same or a similar appliance on exhibition at Heidelburg, manufactured by a mechanician of Berlin. That was the first time, I believe, it was ever suggested for use in connection with dentistry. It is simply an ordinary glass rod, bent to a suitable curve for illuminating purposes. It is almost identically the same thing, the only difference in regard to Barrié's application of it, being that the points are slightly modified to suit the nasal cavities, and made a little more natural. As I have previously remarked, the appliance was made by an ordinary mechanician, who developed the idea. I do not know exactly how he got on to it. He applied it to an electric lamp and suggested its availability for dental purposes.

GOLD.

Ammoniate your gold when you want it noncohesive; by annealing, it becomes cohesive again. Heat will drive off any gaseous matters from the surface of gold.

THE DENTAL REVIEW.

Devoted to the Advancement of Dental Science.

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ASSOCIATE EDITORS:

C. N. JOHNSON, L. D. S., D. D. S.   T. L. GILMER, M. D., D. D. S.

SEVEN YEARS OLD.

THE DENTAL REVIEW issued its initial number the fifteenth day of November, 1886. As our readers know we still live and thrive, and come around once a month to the thousands of offices in this country and other parts of the civilized world. We are making arrangements to do more work than ever before in the year 1894, and are on the lookout for the man or woman who is not a subscriber. There will not be a World's Fair next year, nor a Dental Congress, but we will present the best papers and discussions attainable as of yore.

SEMI-CENTENNIAL.

The Mississippi Valley Association of Dental Surgeons will be fifty years old in 1894. The officers who held over from 1892 ought to get to work and prepare a good programme and ask the old veterans and ex-members to go to Cincinnati and hold a grand reunion and meeting. Get all the ex-presidents to attend, and all the ex-secretaries, and all the exs' too, or xx or xxx to be on hand. Hold the meeting for two days—10 to 12, 2 to 5 and 8 to 10 the first day, and then two sessions the next day. Have a brief history and give papers—no clinics, and get everybody to come, be satisfied, and go home happy.

THE TRANSACTIONS OF THE CONGRESS.

Already the manuscript is going to the printer and if authors do not delay the committee the work will be finished early in the coming year. The history of dentistry in the United States is so far from complete that it will be issued in a separate volume as a supplement. If any of our readers desire the transactions they will have to send the money in *advance*, as no extra copies are provided for, except for advance orders, the members of the congress and libraries and journals.

DON'T.

Don't write papers on "don't." Tell people what to do and tell it in your best style. Copy what is good from others and give credit for it. Don't give histories of mythical cases, and don't recommend a new method on one trial—try again. Give us your individual thought; your individual experience, your individual experiments. Read what others have written on a subject and thrash it over till its own father will not know it, but don't write a paper on don'ts. If you make a discovery, tell of it at once, don't wait till next year or you don't get credit for it. Don't wait a minute longer, but write that paper *now*.

QUACKERY.

The World's Fair having closed we presume the dental fakirs will, with others of the brood, desert us and go to San Francisco, Antwerp and Chili. Such an amount of indecent dentistry was never inflicted on visitors to any city (unless in Paris, 1889), as in the short six months just closed. The writer has seen whole mouths ruined by the adjustment of gold crowns over living and other teeth—done solely for gain. There is no excuse for the attachment or adjustment of a gold crown to a central or lateral incisor or cuspid tooth. Teeth, to the shame be it said of men, have been covered with fac similes of oyster cans, stove pipes and tin horns by the horde of quacks in Chicago.

This perversion of the uses and benefits of dental surgery by mountebanks and others, practicing dentistry in defiance of law needs the attention of the officers of the State Board of Dental

Examiners to clear the city of such blots on the body of the profession. Fortunately even the inducement of very small fees is having a tendency to arrest the flow of patronage to such irregular shops. Nowhere in America have we seen such flaming advertisements as are found in the daily papers of Chicago. The advertiser in Great Britian gives us points as to matter and ingeniousness, but even without a World's Fair it is bad enough in London. There would not be such just cause for complaint on the part of the public, if the promises of the advertiser were kept with his victims. If he really did serviceable, though cheap dentistry—but he does not. The plates that are made, the bridges that are set, and the fillings inserted are not done on honor—at best they are poorly made, finished worse, and fillings are inserted over unfilled roots solely for the fee. Sound teeth are extracted for the pittance of money so small that we wonder such persons can call themselves men when they think of the irreparable damage done to the client.

How any professed professional man can take a fee for mutilating, unnecessarily, a human being is beyond our comprehension.

The reader may ask what are we to do about it. We say—too truly, that the commercial spirit is too prevalent, without the necessary business honor to give good goods for the price paid. It would not be so bad if the cheap advertising dentists were to give value received, but they do not. They employ incompetent, illegal, uneducated men, and their motto is to "hold up" the patients for all that can be gotten out of them, whether the services are good or bad. The "accidents," from lack of control of engine burs, disks and other instruments, the transmission of syphilis by using unwashed and unclean instruments, and the other ills that the public suffer from the "commercial" dishonest dentist, or pseudo-dentist, or ignorant pretender are too numerous to catalogue.

To think that decent men will fraternize with such cattle is sickening. One who is employed in such company said he had lost all self-respect, could not think he was a man, had lost all manly feelings and attributes. We felt sorry for him, but what can be done in such a case.

Well, to avoid a little of it in the future, cheap and nasty colleges must be squelched, blotted out. They must not exist. Decent, reputable colleges must refuse to take, uneducated, ill-bred vicious students. They must refuse absolutely to take one from a "shop," a "parlor," an "association," an "old established," an "infirmary," or other illegal establishment, no matter where located. The appointees of the executive must execute the law as they find it, and rid the State of these stenches in the nostrils of the public, and justify the confidence placed in them.

This must be done without fear or favor, no guilty one must be allowed to escape. The atmosphere must be cleared and the users of secret local anæsthetics, and others using such things illegally, must be driven out, stamped out as we would stamp out anarchy, smallpox, or anything else that was a menace to public health.

Gentlemen of the State Board of Dental Examiners, do your duty, and make a trial to execute the law as we find it, and you will receive the support and encouragement of the best elements of the profession.

DOMESTIC CORRESPONDENCE.

Letter From New York.

To the Editor of the Dental Review:

Dear Sir:—Ere these lines are read the Columbian Exposition will be a fact in history, but Chicago remains, and her energy, if vital, will throb for new achievements. Be it for the future good of our nation, good. We see so much of selfishness in these days of hurry and bustle that one can well chide the ambition and not be overcautious. In this we have a thought concerning our own making of history. 1893 will always be a memorable year for our profession, and more of real fact will be gathered by a retrospect than otherwise. It is quite evident already that there is not a full agreement concerning the true merits of the Dental Congress, more and more will come before us by "Impressions" that will reveal effects and defects. It was not to be supposed that this would be a *model* gathering. It goes without saying that it will bear sifting, and many men will have sieves of various sized meshes, and the wheat will remain and bear fruit for future use. Every practitioner can with profit peruse the official proceedings. These are to go into archives—what will these proceedings exhibit? Why, only our development, and the spirit of the age. Truly, as Dr. Atkinson so often said, it is portrait painting. If all of our portraits are not found on the pages of the illuminated album, be comforted; forget not that a new art is in vogue. The faces of all organized participants in professional dealings are in this portrait, and in due time they will all come to the light. The making of this body began farther back than the original resolutions. It was a creature of those in power, only just as the silver bill has proved, and if our profession is wise it will do just as our congress has done, in that, that the congress of our affairs does not accord with the true scientific demands; it will arise and in its might shape things accordingly. It may be a wise thought to consider if the present methods of organization can bring about the highest demands of the hour. Favoritism will not die out in our day. In the class of organization that is so constituted that professional reputation is regulated too often by votes, and not by intelligence, it is our thought that we would do well to let the present method of organization go on and attend to its affairs; for no one can suppose for a moment that the wheels can or will be turned back, but science should be untrammelled —more, it must be, that its greatest effectiveness be conserved. Scientific knowledge must be the only merit for membership of a scientific body, and this can only be judged by scientific knowledge. This was the aim of the originators of the American Dental Association, but where are we ? No delegate body, can ever satisfy a scientific body. Scientific men must produce their own atmosphere in which they are to breathe and grow and produce. Let a coterie of truly scientific men organize, and select one to sit with them, not over them, and then invite material for consideration, and let the scientific proof of the paper invite the author to membership. Could there be a simpler or more meritorious way of making an association of gentlemen interested in real knowledge? Such a body could ultimately classify to such an extent that there would come a system that could only be an outcome of remedial services instead of so rotative or copied experience; in fact a profession claiming, but in a small degree possessing, a *real* basis of action.

There is so much being whispered in an excited breath, we think it wise to make note of it, after thirty years of so much attrition by the breaking up of old and selfish ways which only sought to cover all supposed knowledge, only dealing it out for a price; but the opposite spirit came among us, having freely received, we were admonished to freely give. Such a fraternity of interests sprang up, that could it be painted in its true portrait to the present day practitioner, it would be belittled as childish, yet how many there are up and down this land—yes, and in other lands—who own their allegiance to this almost phenomenal upheaval of association. We were in a large sense a dental commune. It spread like so many of those prairie fires we saw so many of, en route to Chicago, kindled by the locomotive. Not any too much gratitude has been shown to the giant of energy and enthusiasm who came into this metropolis like a John the Baptist, unshorn and unshaven, yet in childish glee that he had found at last those who hung upon his teachings with the same kind of delight of his own (and let it be said, true to history, not one of those [wise] men who held themselves aloof in New York at his coming have ever been accorded a position in the advance ground), and some who have twadily dawdled his teachings to-day, and were gone to-morrow, on another tack, are to-day assuming, never coming to the knowledge of the truth. Men who shift their position so often do not become good and safe guide-boards for the seekers after the truth. Forbear, readers of the Review, if we seem to emphasize notes of wisdom that are appearing not too frequently, calling our attention to the need of a fixed science. It is painful to note on the other hand what is coming out and will soon be in print—what we are to be treated to, which only shows an utter lack of science—men coming before societies claiming to be the representative society of the land, saying in their introductory as an apology that the committee had hurried them to bring their subjects before their body—saying also they had only come with their theory but that the proof would come if some consumptive patients would die and they could have a slice of their remains to show that all this talk about necrosed edge of alveolus was meaningless—"*no truth in it.*" Well, if this person had brought any intelligence to bear it would have been a little helpful. Men of supposed intelligence have demonstrated the truth of the opposite of his denial. We think it only charitable to leave this matter to intelligence. In the meantime wait for the proceedings of the October meeting of the Odontological Society. Dr. Jackson edified the First District Society at their October gathering. His models show industrious ambition, which is always commendable in a good cause, and they prove the before and after. This society would hardly enjoy a showing of the irregularities that have come in to mar their good name. Let us hope that the future will help to neutralize this. Is it not a little cow boy style to see men sitting all through the meeting chewing a half-burnt cigar and carrying it in their hands while addressing the chair, and talking in a mumbling tone while others are trying to interest the meeting? This was noticeable, and the chair was much annoyed by it. We have seen the professor of a dental school put his little finger into the corner of the mouth of a patient for examination of a case while a lighted cigar was between his thumb and index finger, but this was not in New York. At the November meeting of the First District Society the subject is to be hypnotism, and a lunch.

A large number are always certain to be in attendance—although they may come in late—nothing bad in a little social chat over biscuit and mustard. These things were a power in the Sixties. Is hypnotism a subject of importance to our calling or no? Prof. Fillebrown seems to think so. Read Dumas' writings and note the effect on the ones that gave their attention to this subject. This reminds us of an article worthy of notice and suggestive, in the October number of the *Medical Record*, second week number, on "Painless Dentistry," by Dr. R. S. Stebbins, of New York. The suggestion of his is in the idea of diverting the mind from the apprehension which is such a factor in the minds of many patients. This little invention in connection with the engine simply acts as a mind treatment, not a bad idea. Dr. Stebbins is the author of that admirable collection of first and second dentition models on exhibition in the Army and Navy Museum at Washington, which is well worth an examination.

The decease of Dr. Charles Kingsley will be a surprise. He died in Paris, October 22d. He and his brother Dr. Norman W. Kingsley, had been spending their summer together at Carlsbad. Unexpectedly, on the arrival of Dr. Norman Kingsley in Paris, he found his brother seriously ill with pneumonia, which the best medical skill could not combat with, and he has passed away at fifty-three years of age. Dr. Kingsley was an associate of Dr. John Crane, for many years at No. 7 Rue Scribe, Paris. He leaves a wife and two sons, the elder is a junior at Yale University, and the younger is at school in England.

Dr. Norman Kingsley is still in Paris. This sudden affliction is a serious shock to him. Dr. Charles Kingsley has been a truer representative of American ability than many have proved. We have had more than an ordinary admiration for Dr. Crane, his associate; he was a true gentleman. There is in connection with this sad event, a very dark shadow, that we will only hint at; but we promise our readers that if these hydra-head monsters that are making this shadow, presist in their ghoulish and fiendish purposes, we will let such light in upon them, that they will be driven into the pit of their own forming. "Be not deceived. Whatsoever a man—or men—soweth that shall they also reap." By this we mean, it in no way involves the repute of the Kingsleys. We have men in our ranks that are showing that they are capable of dark and wicked deeds, and they will not go unnoticed. For in these deeds *our* whole profession will be involved, and a stain will come upon us that will be indelible.

Sad, sad ending of the famous Chicago Columbian Exposition. Yes, the world in gloom. What does it teach? We know not what a day nor an hour may bring forth.—Mayor Harrison suddenly assassinated.—(We turn away thoughtfully.)

QUID NUNC.

REVIEWS AND ABSTRACTS.

DEGENERATION OF HUMAN TEETH; ITS CAUSE AND ITS CURE.—* * To insist rigidly upon certain kinds of food, either for children or adults, is one of the errors growing out of a partial view of the facts bearing upon the subject. The craze for the use of phosphatic foods, has run a very vigorous course in America during the past twenty years, and all the while the quality of the teeth has steadily deteriorated. The truth is that the nutritive quality of food consumed in England and America is to-day, on the whole, far in advance of what it was fifty years ago. I am prepared to join hands with any one in the condemnation of the use of any considerable proportion of soft and pulpy foods, but the facts will not warrant the statement frequently made that modern food does not contain all the nutritive elements necessary for maintaining any part of the body in a state of health. Flour made from whole wheat may often prove a valuable food material, not because it is markedly richer in nutritive substances, but because it happens to better suit the assimilative powers of the individual. It is the difference in this assimilative power which makes "one man's meat another man's poison." The vegetarians insist that animal food is conducive to degeneration of the teeth, but the facts are against them. The native inhabitants of Greenland and Labrador, living almost exclusively upon animal food, preferably that which is fat, have very fine teeth almost entirely free from decay. The same is true of the Gauchos, a tribe of cattle-breeding people inhabiting the great upland plains of South America, and subsisting entirely upon a meat diet. This same people, living in another part of the country, in towns, and consuming a mixed diet, suffer considerably from decay of the teeth. The Scotch people, who eat large quantities of oatmeal, and the Chinese, who live almost exclusively upon a vegetable diet, have, as already mentioned, very poor teeth. The only conclusion which can be drawn from a careful examination of the foods of all nations is that vigorous people may be perfectly nourished on a great variety of food materials, while the most carefully selected diet will not maintain a high standard of vitality among a people where there is a prodigal waste of nervous energy.

But entirely aside from any benefits to be obtained from changes in food habits, it is possible by personal care to prevent to a very great extent, the rapid decay of the teeth which we everywhere see going on. This care must, however, be intelligently directed, and it must also be fortified and aided at the right time by such professional assistance as may be necessary. Most people whose teeth decay rapidly make the fatal mistake of delaying their application for professional aid, until the period of actual suffering arrives. It is then often too late to remedy completely the difficulty, and such benefits as may be conferred necessitate the expenditure of far more time and entail more suffering than if the trouble had been taken earlier. Much greater benefits may often be obtained by spending one hour with your dentist in January, than you will be able to secure by sitting under his hands for three hours if you delay your visit until the following December. It is true the more skillful dentists of the present day have done much to eliminate the element of pain from their operations, but I imagine that no amount of tact or inventive skill will ever convert dentistry into such a luxury that people will prefer to spend three hours rather than one in a dental chair.

I may be permitted a slight digression at this point to emphasize the necessity of careful handling of children during their first experiences with the dentist. Once their confidence is completely secured, as it nearly always may be by the exercise of tact and gentleness, they make the best of patients. But any attempt to force them to submit to long and painful operations is certain to create a prejudice that the knowledge of maturer years can hardly efface.

The golden truth with reference to personal care of the teeth is this: A perfectly clean tooth will never decay. Now, perfect cleanliness of the mouth largely means that it must be kept free from those destructive, acid-forming bacteria which are the immediate cause of decay of the teeth. But can this be accomplished? I believe that something closely approximating this very desirable state may be reached. If the first object of dentistry be to save the teeth by preventing decay, then it is a source of no little surprise that conscientious dentists have not made greater efforts in this direction. Few people know how to brush their teeth properly, and still fewer possess brushes with which this important feature of the daily toilet can be thoroughly performed. The head of the brush and the face of the bristles should be curved so as to conform in a general way with the arch of the teeth. Each tuft of bristles should be pointed so as to obtain the utmost penetration into the deep sulci or grooves in the masticating surfaces of the molars and bicuspids, as well as into the interstices between the teeth, for it is here where the bacteria can usually obtain undisturbed lodgment, that the process of decay most frequently begins. The teeth should be brushed in the direction in which they grow, that is to say, the *upper* teeth should be brushed *downward* and the *lower* teeth *upward.* This enables the pointed tufts of the bristles to penetrate the interstices between the teeth to a much greater extent than if they are brushed directly across their faces as in the usual manner. But brushing alone is not sufficient to keep the teeth entirely clean. Of nearly as much importance as the brush is the use of that form of untwisted silk thread known as silk floss, which can be obtained from any good dentist, or from the dental supply stores. This should be drawn between the teeth and moved back and forth freely for the purpose of thoroughly removing any decomposing particles of food which may have become wedged between the teeth.

The preparation which is used in cleansing the teeth is also a matter of much importance. The various carbolic powders, camphorated chalk, and boric acid pastes, which are so extensively advertised and sold, are better than nothing when they do not contain injurious substances, as is sometimes the case. But, so far as I am aware, and I have given much attention to the matter, none of the preparations to be found in the market contain any antiseptic, or, more properly speaking, any germicide capable of destroying the bacteria which proliferate in the mouth. Dr. Miller says that he found a very weak solution of corrosive sublimate the most efficacious germicide for this purpose. But this mercurial salt is a virulent poison, and is unsafe in the hands of a nonprofessional, even in the form of a weak solution.

There has recently been added to our resources in this direction a drug which seems to meet all requirements. It is one of the many wonderful products of coal tar, and is known as hydronaphthol. It ranks very near corrosive sublimate as a germicide, and is quite free from the toxic properties of that drug. It is a brownish powder, possessing a slightly spicy odor and taste, and is therefore in convenient and agreeable form for use Special conditions of the mouth often call for a special form of toilet preparation, but for general use I recommend a paste made by grinding the various necessary powders in pure glycerine, and adding, in addition to the blending of essential oils for flavoring, five or six grains of hydronaphthol, previously dissolved in a few drops of spirits of wine, to every ounce of the tooth paste. Such a preparation thoroughly applied to the teeth morning and evening with the brush and silk floss will, if the practice be commenced with the eruption of the permanent teeth, enable most people to reach the meridian of life with an unbroken set of teeth, and with far less aid from the dentist than is usually required. And, finally, perfect cleanliness of the mouth means more than the preservation of the teeth and the avoidance of such diseases as spring from imperfect mastication of food. Recent investigations make it almost certain that the bacteria of several infectious diseases pass their period of incubation in the mouth. I believe that one of the best safeguards that can be adopted against attacks of diseases of this character will be found in a thorough cleansing of the mouth twice or three times a day with a preparation containing the germicide above mentioned. I have strong personal reasons for believing that this antiseptic treatment of the mouth is a most effective prophylactic measure against that dreaded scourge, influenza, which has made such sad havoc in London during the past two years.

The New Review. James Leon Williams.

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CODE DU CHIRURGIEN DENTISTE. Par Emile Roger, Avocat, and Charles Godon, Chirurgien Dentiste, à Paris, France. Paris: J. B. Baillière et Fils. 1893.

PRACTICAL NOTES.

PYROZONE.

BY J. G. REID, D. D. S., CHICAGO, ILL.

Under the head of office practice I have jotted down a few thoughts on pyrozone. A somewhat limited experience in its use may deter me from saying all that could be said about it.

"Hydrogen dioxide H_2O_2, commonly called peroxide of hydrogen, is formed by reaction between barium dioxide and hydrochloric acid in the cold. Obtained in concentrated condition, this body appears as a colorless, transparent, heavy, oily fluid of specific gravity 1.452, neutral to test paper, remaining fluid at temperatures far below the freezing point of water, but rapidly, and even explosively suffering decomposition into water and gaseous oxygen upon even a slight elevation of temperature.

"Hydrogen dioxide mixes in all proportions with water, and dissolves also in ether. As a medicine it is used in solution in one or the other of those fluids; the aqueous solution being commonly known as *oxygenated water*, and the ethereal as ozonic or ozonized ether." The solutions above noticed have more recently received attention under the head of pyrozone.

Recent chemical tests go to show that hydrogen dioxide which dentists have so long and commonly used, is not so powerful in strength as supposed, viz, the fifteen volumes having been tested as low as ten volumes; a strength representing a charge of ten volumes of oxygen to one of the water of the solution, or a three per cent of hydrogen dioxide.

Under the head of pyrozone we have three distinct solutions, viz, three, five, and twenty-five per cent solutions ; the three per cent being an aqueous solution and the other two being ethereal solutions.

The little knowledge I possess of its use has been obtained from reading. I procured the three and five per cent solutions soon after their introduction on the market, and have experimented with them ever since. Observation demonstrates that in the aqueous solution we find a much more stable preparation than in any heretofore in use. It does not deteriorate from exposure. This sample I have used many times, and apparently the results are the same as when first opened. This shows that great excellence has been attained in its preparation. The five per cent solutions being ethereal, it requires to be used in a different manner. The therapeutical success following its application has been exceedingly gratifying to me, and in so far as I see does all that is claimed. The manifestations when applied to pus pockets are almost identical to the older products, but the results are more perfect. The contrast between pyrozone and other preparations is the notable increase in the effervescence when brought in contact with mucous surfaces or pus pockets. Adopting the suggestion offered by others of the value of the aqueous solution as a mouth wash purely for its antiseptic properties, I prescribed it recently to a patient affected with hypertrophied gums, in fact the entire mucous membrane of the mouth and throat was greatly and constantly inflamed. Pyorrhœa was also present about many of the teeth. As a preparatory treatment I suggested the use of the medicinal pyrozone which was done, and after three days' use of it I could scarcely believe my own eyes so great and sudden was the change from disease to health. In this case I superintended the first application, diluting the three per cent solution one-third. After thorough rinsing of the mouth I continued the treatment by spraying the entire mucous membrane of the mouth with the five per cent solution. Considerable pain followed from the latter application, but the pain lasted only a short time, perhaps ten minutes. I have employed both the three and five per cent solution for bleaching teeth, but have not used it in a sufficient number of cases to be able to express an opinion, but will state that the five per cent is preferable to the three per cent, and by this am led to conclude that the twenty-five per cent would be preferable to either of the other solutions. It is hardly necessary for me to allude to the fact that the rubber dam should be adjusted to the teeth before using the agent as a bleacher.

Hemorrhages from the gums incident to removing calculus can be considerably controlled by applying the medicinal solution, thus suggesting that it possesses hæmostatic properties. I have not had occasion to use pyrozone in connection with necrosis, but judging from its action in other places it would seem to be an agent of inestimable value. In conclusion will say this agent should be in the operating case of every dentist, and that its future seems to be replete with an exceedingly promising future.

MEMORANDA.

Read S. B. B. for G. B. B., page 845.

Dr. T. W. Brophy, is in Minnesota on account of his health.

R. Matthews, D. D. S., of Wichita, Kan., was in Chicago this month.

Dr. B. H. Catching, of Atlanta, Ga., visited the World's Fair in October.

There are more than seven hundred dental students in Chicago this winter in the various colleges.

The Northwestern University Dental School is located in the new building at Twenty-fourth and Dearborn Streets.

Most if *not* all of the dental journals have been dealing fairly with the Congress. The *I. D. J.* being slightly *indisposed* toward it.

The Chicago College of Dental Surgery occupies its new building at the corner of Wood and West Harrison Streets, opposite Rush Medical College, and the Cook County Hospital.

When the mucous membrane of the mouth or throat is inflamed, rinse the mouth, and gargle the throat with pyrozone, then use to follow, a solution of boro-glycerin 1 to 10. This is effectual, and is a great soother.

In using alumnol care should be exercised to not use it too frequently. After three or four days' use of it successively, the gums will become abraded and tender. Once in three or four days is quite often enough to inject it between the roots and gums. Never inject it into the tissues.

SYNOPSIS OF DR. FLAGG'S PAPER ON THE HUMAN TEMPERAMENT IN ITS RELATION TO THE HUMAN TEETH.

1. That there is a necessity of more extended study on the part of dentists outside the sphere of mechanics to cope with the difficulties of dental practice.
2. That the faculty of observation properly exercised leads to a recognition

of the enormous mental and physical differences that exist between different members of the human family. The term generally accepted to define these differences is temperament.

3. That temperament is an attribute of man, and in its entire manifestations does not exist in any other animal.

4. That the cause of temperament is not satisfactorily demonstrated but must be sought for, probably in mental rather than bodily sources.

5. That temperament is abundantly manifest in the form, structure, color, and arrangement of the teeth, and dentistry cannot be practiced scientifically while ignoring its indications.

NEW ENGLAND DENTAL SOCIETY.

The thirty-first annual meeting of the New England Dental Society was held in Curtis Hall, Y. M. C. A. Building, Elm Street, Worcester, Mass., Thursday and Friday, Oct. 5th and 6th, 1893. About thirty members of the profession were present. The following papers were read and discussed:

"A Few Practical Suggestions." By George F. Harwood, D. D. S., Worcester, Mass.

Paper—"Observations at the late Congress."

"The Immediate Replacement of Tissues."

1. "The Face, Nose, Tongue, and Jaws, as practiced by Dr. Claude Martin, of Lyons, France."

2. "The Teeth, as practiced by Dr. Wm. J. Younger, of San Francisco, Cal., with Personal Observations." By Louis Ottofy, D. D. S., Chicago, Ill.

Paper—"The Use of the Eyes." This paper was illustrated with the lantern. By David Harrower, M. D., Worcester.

"Electricity in the Dental Office." By Prof. A. S. Kimball, of the Worcester Polytechnic Institute.

The selection of the next place of meeting was left to the Executive Committee.

OFFICERS OF THE SOCIETY FOR 1894.

President—George F. Cheney, St. Johnsbury, Vt.

First Vice President—James H. Daly, Boston, Mass.

Second Vice President—Dwight M. Clapp, Boston, Mass.

Secretary—Edgar O. Kinsman, Cambridge, Mass.

Assistant Secretary—Marion L. Woodward, Boston, Mass.

Treasurer—George A. Young, Concord, N. H.

Librarian—Jos. King Knight, Hyde Park, Mass.

Executive Committe—S. G. Stevens, Boston, Mass.; W. E. Page, Boston, Mass.; A. F. Townsend, Worcester, Mass.; C. H. Hayward, Petersboro, N. H.; E. B. Davis, Concord, N. H.

TRICHLORACETIC ACID.

To the Editor of the Dental Review:

DEAR SIR:—I see a statement in the current member of the *Cosmos* regarding the efficacy or rather the lack of efficacy of trichloracetic acid that is apt to be misleading. Dr. Ottolengui's experiments lead him to believe that this drug has no effect on calculus and his conclusions seem to me to be incorrect for this reason: On reading the article in question, I had a four per cent solution of trichloracetic acid prepared, in which was dropped a tooth that had been out of the mouth some time and the end of which was covered with serumal calculus. The tooth was allowed to remain over night in the solution, and on examination this morning the calculus was seen to be separated from the root, and at the end of twenty-four hours the calculus was almost entirely dissolved. I know Dr. Ottolengui says he did not resort to this test as it would prove nothing as it would be impossible to treat a tooth *in situ* in this manner, but I think we should remember that a "continual dropping will wear away a stone," and while one or two applications of trichloracetic acid will not bring about the desired result, yet by persisting in its use, applied with a hypodermic syringe instead of with a stick of wood and at the same time removing all possible deposits with suitable instruments, the end may be and is accomplished. Perhaps if Dr. Ottolengui's experiments had been made with a weaker solution than he used the results would have been more satisfactory, for he doubtless knows that with many chemicals a saturated solution will effect nothing whereas a weak solution of the same ingredient will work wonders on the substance to which it is applied.

A. W. McCandless, D. D. S.

I have witnessed the test herein mentioned and can vouch for the correctness of the statements made relative thereto by Dr. McCandless.

B. D. Wikoff, D. D. S.

[Here you have the whole thing in the nutshell; if you have not used trichloracetic acid, try it.—Editor.]

OH, YES!

Receding gums.—*People Losing Their Teeth from a Cause but Little Understood.* "People are losing their teeth from a new cause nowadays," said a dental surgeon to a Washington *Star* man. "It is a complaint which seems to have become common only within the last fifteen years or so. 'Recession of the gums it is called. Tartar is deposited at an abnormal rate, and this carbonate of lime secreted from the saliva, pushes the gums back from the teeth. After a while, if nothing is done to prevent it, the trouble gets as far as the sockets, which become inflamed. Finally the teeth fall out.

"A well-known statesman came to me fourteen years ago, with a bad case of the disease. Every tooth in his head was loose, and one of them was so far gone that I took it between my thumb and finger and quietly lifted it out. Within three months I had fixed him up so that all the rest of his dental equipment was perfectly solid in his jaws. It was accomplished simply by removing the destructive tartar and preventing it from accumulating again; also with the aid of a little medicine applied to the gums. The distinguished patient of whom I speak comes to me every two or three months and undergoes a little treatment. In that way I have been able to keep his teeth for him thus far.

"It is a very peculiar disease. In a case so far advanced as the one I have described, it can hardly be cured. That is to say, the tendency to an accumulation of tartar cannot be stopped. All that can be done is to prevent it from accumulating by scraping it away at intervals, and by medicinal applications to the gums. In an early stage, however, the complaint is perfectly curable, and the tendency in most cases can be overcome. But much care and continual attention are required. Otherwise the person will have lost some of his teeth by the time he is forty years old, and after that the rest of them will go rapidly. The making of false teeth has arrived at great perfection, but at best they are poor substitutes.

"As I have said, this may be regarded as a new disease. At all events it is only in recent years that it has become prevalent. It is important that people's attention should be called to it. From seven years to twenty care must be taken of the teeth lest they decay. There is little danger of that after the twentieth year is passed. But from that time on one should look out for tartar. A mouth affected in the way I speak of is almost worse than a badly decayed mouth. The trouble means certain loss of the teeth unless looked out for and treated."—*Herald.*

OHIO STATE DENTAL SOCIETY.

The next annual meeting will be held in the Neil House, Columbus, Ohio, December 5, 6, 7 and 8. A good programme has been prepared and dentists are cordially invited to be present.

The Columbia Dental Club of Chicago is closed—perhaps next year it may be revived in new quarters. It accommodated during the six months of its existance more than 5,000 dentists as a headquarters, at a total expense to the profession of Chicago of about $3,000. Peace to its ashes.

NEW STATE BOARD OF DENTAL EXAMINERS FOR ILLINOIS.

As at present constituted the State board is composed of Geo. A. McMillen, D. D. S., of Alton, Ill., President; F. W. Huxmann, D. D. S., of Chicago, Ill., Secretary; L. L. Davis, D. D. S., Chicago; Letcher Irons, D. D. S., Mount Vernon and Garrett Newkirk, M. D., Chicago. The board held a meeting in Springfield Nov. 14, and will meet again soon in Chicago.

If the board will go to work and rid Chicago of the illegal practitioners it will do itself credit. Here's our hand for a little active work.

OBITUARY.

Dr. Charles Kingsley.

All the profession will learn with regret that Dr. Charles Kingsley died in Paris on the 22d of October. He was ill during less than two weeks, suffering from pneumonia and congestion of the lungs. The crisis was supposed to have been passed in safety when heart-failure suddenly supervened.

Dr. Kingsley was born Dec. 3d, 1841, at Pittsford, Vermont. While preparing himself for college he earned the necessary fees by teaching, and finally while a student of the University of Rochester the civil war began and he enlisted in the Union Army in 1861, remaining until he was mustered out in 1865. In the same year he began the study of dentistry in the office of his brother, Dr. Norman W. Kingsley, and because of a natural aptitude rapidly became very skillful both as an operator and in other branches of dental work. He was the assistant and associate of his brother for five years and in December, 1871, formed a partnership with Dr. Crane, in Paris. This partnership continued until it expired by limitation thirteen years later, since which time he has been in independent practice at No. 9 Rue Auber.

During his career abroad Dr. Charles Kingsley acquired the distinction of being considered one of the most skillful Americans practicing abroad, and rapidly obtained a very large and remunerative practice, his clientele being of the most select order, including many of the nobility from various capitals of Europe, and the most distinguished Americans traveling abroad.

Among his brother dentists he was held in highest esteem and contributed as greatly as any toward maintaining the high character, dignity, and good name of American dentists in Europe. He was Vice President of the American Dental Society in Paris, of which Dr. Thomas W. Evans is President.

He was a man of studious habits, refinement of manner and culture, a master of his profession, and of sterling integrity.

He married Miss Jessie Bradbrook in 1871, and she survives him. He also leaves two sons, the elder of which is at Yale University, and the younger at school in England. His body was cremated at Père la Chaise, October 24th.

R. Ottolengui.

IN MEMORIAM.

F. H. Birchmeier, D. D. S.

Whereas, That grim messenger, death, has again invaded the ranks of the Odontographic Society, and taken an esteemed member and friend. Therefore, be it

Resolved, That in the untimely death of F. H. Birchmeier, D. D. S., the Odontographic Society has sustained a loss which each member sorely feels; his quiet, dignified, and upright bearing has left its impress on all who knew him; be it further

Resolved, That we extend our sincere sympathy to his bereaved parents in this their sad affliction.

Resolved, That these resolutions be spread on the records, and a copy be sent to the family of the deceased, and to the several dental journals for publication.

U. G. Poyer,
F. K. Ream,
E. A. Royce,
} Committee.

THE

DENTAL REVIEW.

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SPREADING PROPERTIES OF GOLD.*

BY E. A. ROYCE, D. D. S., CHICAGO, ILL.

After the remarks made at the last meeting it requires some courage for a plain D. D. S. to bring such a practical subject as mine before this body in such detail as I do to-night. But I do so with the full belief that the science of saving teeth is the science that most interests the dentist. The life of the dentist is made up of carrying out details, and anything that interferes with the thoroughness of his operations, anything that leads him to overlook the minutiæ, lessens his usefulness to his patients.

If, with the advance of scientific knowledge, the standard of our operations is allowed to fall, any supremacy that the American dentist may have enjoyed will pass away.

In the short time I have this evening it will be impossible to do justice to a subject of such importance to the operator as the one we have under consideration, as it is my object to direct attention to one of the working qualities of gold which few of us have observed, and a less number have been able to subdue or make subserve our purpose in the preservation of teeth.

While gold is not the ideal filling material in all respects, it is without doubt the best permanent filling at the present time for teeth of medium or good structure.

The noncohesive form of gold was the first used for filling teeth, and was worked in ropes, mats, or any of the many forms in use, and so introduced into the cavity that each piece would reach from the orifice to the bottom ; then, by the introduction of a tapering instrument, the gold was forced against the walls of the cavity. The pliability of this gold allowing of good adaptation to the walls of the cavity by this method of spreading.

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*Read before the Chicago Dental Society. Nov. 7, 1893.

The majority of operators have found cohesive gold to be very intractable. To fill a cavity with cohesive foil and fill it perfectly is a difficult and tedious operation, as each piece must go right to its place, or that place is left vacant.

I wonder how many here have filled glass tubes with gold foil to see just how well the gold would adapt itself to the walls. A trial of this will convince the most skeptical that the operator that uses cohesive gold successfully must indeed be a man of skill and patience.

The combination of cohesive and noncohesive gold in filling is a good one. We have the spreading of the noncohesive and the hard wearing qualities of the cohesive gold, and in certain cavities a very perfect filling is the result, but in other cavities the gold must be as solid as possible for the purpose of retention, in which case the use of noncohesive gold would be contraindicated.

For some years the manufacturers of gold have been trying, with varying degrees of success, to make a gold that would creep out from under the plugger. The result was the plastic golds, which are now well known in the profession, but which few have been able to work properly.

Plastic golds came to the dentists as the only gold with which to fill all cavities. Its advocates claimed that it was only necessary to fill the cavity loosely with the gold, burnish the surface and the filling was perfect. Time always proves the fallacy of any but the most carefully performed operations.

That plastic golds have their place, and that place a very important one, I believe, but it must be worked with care if good results are to follow. As I will show later, the points that we have used with this gold are so shaped that it is almost an impossibility for it to spread, but observation has satisfied me that even the heavier foils can be spread sufficiently in condensation to perfectly adapt them to all properly prepared margins.

The Herbst method of condensation by burnishing, adapts the gold nicely to the walls of the cavity, but while the conservative property of gold is a mechanical one, it depends not only upon perfect adaptation to the cavity to exclude deleterious matter, but also upon strength to resist strains, preserve contour and resist force of mastication.

Condensation by burnishing does not seem to give the required density.

It was my fortune for some years to be associated with noncohesive gold workers and it was forcibly impressed upon my mind that while noncohesive gold is pliable on account of its lack of cohesion, in working that gold its adaptation to the walls of the cavity is entirely by spreading, and this led me to test the spreading of cohesive gold as usually manipulated by the dentist. Finding it did not spread to any appreciable extent, I began a series of experiments to find some method of spreading it, reasoning that if noncohesive gold could be so perfectly adapted by spreading, a better and easier adaptation of cohesive gold could be made if it could be forced from the center of the cavity toward the sides.

There are three different ways of spreading gold:

1st. That of forcing it apart by instruments more or less tapering, as used in noncohesive gold.

2d. That which occurs from the malleability of a solid piece of gold.

3d. That which occurs in cohesive gold while in the process of condensation.

Of the first I have spoken sufficiently. There seems to be great doubt in the minds of many as to the spreading of a well condensed filling under the force used by the dentist, but the experiments that I will detail prove positively that by properly directed force, gold can be worked at the will of the operator.

It has been my belief for years that the malleability of gold, if rightly understood and rightly manipulated, is an important factor in our gold operations. While if this is not taken into consideration it may cause the destruction of some operations that are otherwise carefully performed.

First experiment. Through a steel plate was drilled a small hole with deep contersink on one side. In this hole was placed a pure gold wire small enough to play back and forth easily. Both ends were riveted, so while the wire would play freely back and forth, it could not readily be removed. The riveting was done by the Harris Pneumatic Mallet, as I have found that most satisfactory, and proved to me that I could spread pure gold to a certain extent. The blow was the same that I had used just before in finishing a large molar filling.

Experiment No. 2. A similar hole in the center of the plate was filled with No. 60 rolled foil. The plate was placed upon a small anvil, and the filling started. When it reached the place enlarged by the countersink, the assistant who was preparing the gold was directed to cut the pieces one-sixteenth of an inch square, and to place each piece carefully in the center of the filling, which order was faithfully carried out. The same mallet and instrument was used as in the first case, and the resulting filling in the countersink was about three-sixteenths of an inch in diameter, which is nearly three times the size of the larger piece of gold used. The malleting was excessive but is not the result excessive also? Could such a result be obtained by even excessive malleting if each blow had not its effect upon the gold?

Third experiment, was filling a similar hole in one end of the plate with William's Crystalloid gold, the pieces being smaller than the last and the result about the same.

In the next test I wished to show the extent to which gold could be spread, and as I always supposed that gold when worn in the mouth as a filling became harder, and therefore more difficult to manipulate, to make the test more severe I took a filling placed in the mouth over twenty years ago by the late Dr. Sherwood, which I had just removed. This filling was in a very large compound molar cavity, and was built around screws. A hole was cut in a toothbrush handle that was at first designed merely to give me the breadth of the filling for an approximate measurement, as I intended to try and spread it upon the anvil, but after considering the probabilities of success I decided to mallet the filling into the hole in the toothbrush. I do not claim that this gold filling fits the cavity perfectly, for the spreading is on the surface, but the margins are perfect, except the one place where there was a slight lack of gold, and even there the gold is as perfectly adapted to the walls as in any other place. The question you would probably ask me is the same one that came to me. Can this be done in a tooth and not fracture it? My answer is that I used the same blow and the same point that I frequently use in the mouth.

Fifth test. A piece of glass tube, the walls of which were about one-thirty-second of an inch in thickness, was set in plaster. I had previously condensed a piece of gold in a hole slightly smaller than the tube, to about the density of the body of an average filling, and this was cemented in the glass tube. A thin scaler could be passed between the gold and the glass. Under the mallet this gold spread sufficiently to approximate it closely to the walls of the tube, making a tight plug in the glass. Ink was poured into the tube and allowed to stand for hours. The penetration at the sides was just down to the body of gold.

There is another spreading of gold which for importance to the operator might have been placed first on the list—that is, spreading during the process of condensation. I have never seen a test that would show this quality except during the operation, but I believe that every gold possesses it to a greater or less degree. The line of demarkation between this quality and malleability is not very prominent in operating, but careful observation proves that plastic golds can be adapted to the inequalities of the cavities and spread over the margins where it is desirable, with most surprising accuracy and ease. Perhaps not so easily as paraffin, but with care the operator can make a joint that will be fully as serviceable.

Trials in glass tubes, teeth out of the mouth, as well as practical operations, have proven to me the usefulness of gold's possessing this quality to a high degree.

In condensation of gold there are two forces that must be considered ; the first is the force delivered to the plugger and by that conveyed to the gold, and the second is the resistance offered by the gold to the particles of gold.

Let us consider first the force of the plugger. It is a law in mechanics that a force is delivered to an object at right angles to the surface delivering that force.

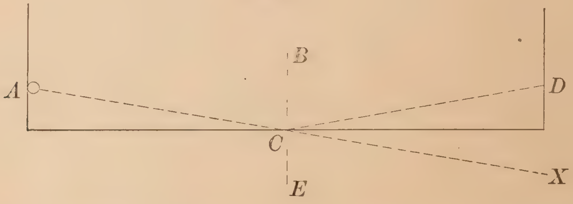
A good illustration of this is had in billiards. The expert is able to english the ball that he shoots, so as to do about as he pleases, but the novice wishes to drive a ball in a certain direction, say for a pocket in a game of pool. It is his object to make the ball that he shoots hit the one that he wishes to put in the pocket, so that a line drawn at right angles to the surface at point of contact of the two balls will be directed toward the pocket. If he fails to calculate so as to obtain this, ball number two does not go where he wished, but in the direction in which the force is exerted.

Another illustration can be had by taking a bullet or a marble and delivering force to it by means of a pencil or ruler in such a manner that the right angle to the surface will be in different directions at different trials, and note the result.

The resistance offered by the gold was the second force to be considered. Let us look to the billiard table to illustrate this.

If a ball be placed one foot from the side cushion at one end of the table, and shot in a direction to hit the center of the side cushion and go to the other end cushion, you will find that it will strike the end cushion just the same distance from the side cushion that it started. In other words, the angle of incident is equal to the angle of reflection.

Fig. 1



It is a law of mechanics that resistance is equal to the force applied and in a line directly opposite.

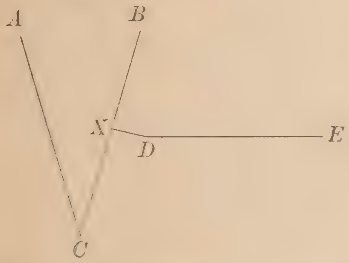
As we have seen, the force delivered to the side cushion at "C" is at right angles to the face of the ball, and would be toward "E." The resistance is directly opposite, so it is at right angles to the face of the cushion and toward "B," but the momentum of the ball would carry it forward, so it would not go to "B," but to "D." This not only illustrates that the resistance is at right angles to the face of the cushion, but illustrates also the diversion of forces.

The force that took the ball from "A" to "C," if not diverted would carry the ball to "X." The resistance offered at "C," if not diverted would leave the ball at "B," but the two combined send the ball to "D."

It may seem strange to go to the club and watch billiard balls to learn about gold filling, but the forces act in the same manner under our plugger points as on the billiard table, and there are certain laws which we are bound to respect if we would obtain the best results.

Let us see if the laws of which we have been talking will not help us solve the gold question. If you remember, it was spreading that was thought desirable, not an enormous amount of haphazard spreading out, but a very small pushing outward of the gold that can be controlled. Let us look at the forces used in the spreading of noncohesive gold. After filling the cavity, the cylinders, mats, ropes, or whatever form you please, a plugger is forced right down through the center, crowding the gold to the sides of the cavity.

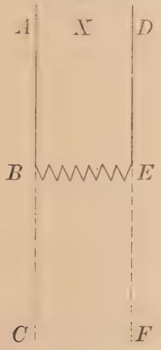
Fig. 2



This plugger is tapering or more or less wedge-shaped.

Let "A," "B," "C," represent the point that is crowded into the gold. Now we have seen that the force is given off at right angles to the surface that delivers it. So the force delivered by the surface "B," "C," will be delivered in the direction of "X," "D," but there is a resistance of the gold which is held in place by the bottom of the cavity, so the force is diverted toward "E," making a direct lateral pressure toward the walls of the cavity. This pressure is so great that only teeth with good walls can be successfully filled in this manner.

Fig. 3

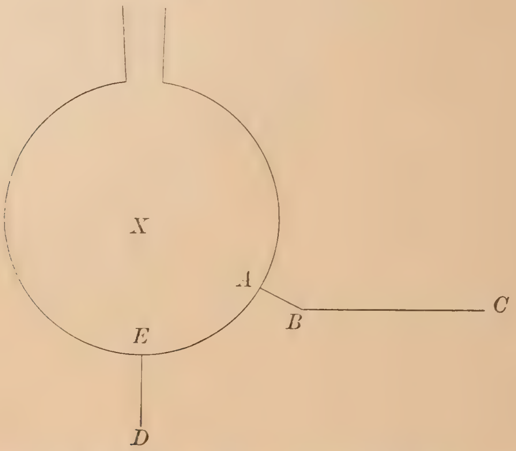


With the discovery and utilization of cohesive gold it was found that lateral force could not be obtained by forcing a point into the body of gold. So lateral force was abandoned, and a flat-faced, serrated plugger was adopted.

Let "X" represent the plugger for cohesive gold. The force delivered to "X" by a blow is conveyed to the gold at right angles to the face delivering the force according to the law before noted. So the force in this case is projected straight ahead of the plugger.

Lines "A," "B" and "D," "E," show the boundary and direction of the force, and lines "B-C" and "E-F" show the boundary of the practical effect of the force. With a flat-faced plugger it is not possible to obtain any lateral force unless the point is directed toward the sides, in case that is done dents are made in the gold by the corner of the plugger which it is a practical impossibility to fill. If any spreading occurs under a force from this point, it must be deep in the filling, just where it may do damage by causing the enamel to check.

Fig. 4



Under points of this kind gold cannot be coaxed, but is the most obstinate and unruly material that you can think of. Force exerted in the center of the filling or anywhere but right at the edge, has a tendency to pull the edges of the filling away from the walls of the cavity, for the force is not distributed or diverted in the least, but is always directly ahead of the point, consequently the gold does not spread on the surface under a flat-faced plugger.

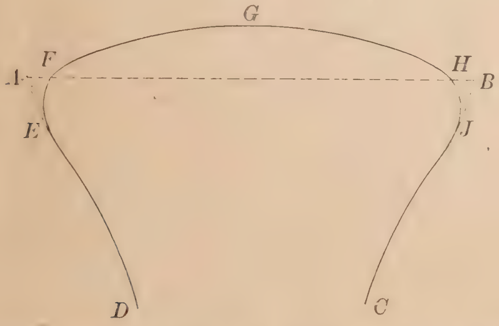
Years ago I saw one of the old practitioners use a common hand bur to condense noncohesive gold. How about the force there?

It spread the gold all right. For eighteen years I have used a shot burnisher as my standard plugger with which to spread amalgam. It is not a wedge but the amalgam goes to place like magic. What is it that puts it there.

Let "X" represent the bur or shot burnisher. The law that force is delivered to an object at right angles to the face that delivers the force holds good here. As "X" exerts its force at "E", the force is directed toward "D" or straight ahead, but as soon as the force is exerted at either side of "E," right angles to the face is not in the direction of "E" "D", as it would be in a flat point.

If we look at one of these points, say "A," the force would be directed toward "B," so the particles of amalgam would be forced in that direction. Now the resistance of the filling at "B," stops the progress of the particles in that direction, as in the case of the cushion and the billiard ball, but here there is a lack of the elasticity that is found in the cushion, so instead of any rebound there is a diversion of force in a lateral direction toward "C." This is what is needed for the lateral force without the wedge—can this be utilized for cohesive gold. I say most emphatically, yes. Modifications are needed, but this is easy if the principle is not lost sight of.

Fig. 5



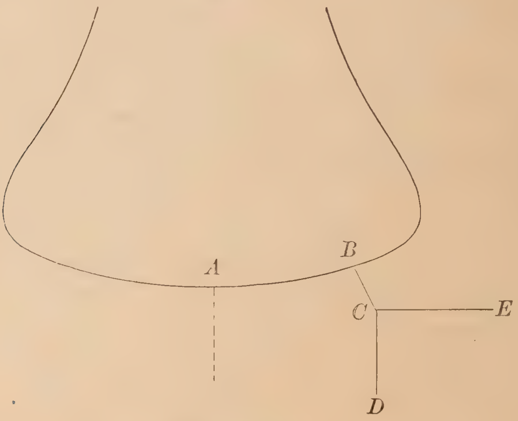
This was the starting point I took in designing my plugger point. I need not detail to you the many experiments, the amount of patience and work required in trying the different forms that gave promise of conveying and distributing the force to gold as I desired, but will ask your attention to the result.

The first decision that I came to was that the working face of the plugger must be a segment of a circle, and the radius must not be too short.

Next there must be a working side which should be ovaled and the bulge as near the end as possible, and there must be no angles to come in contact with the gold.

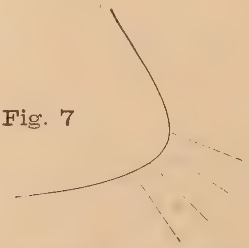
I also found in coaxing the gold up to the side of the cavity it was well to have the working end of the plugger slightly larger than the shank, so I adopted the bell shape, the large end to be the working end.

Fig. 6



Lines A, B, C, D, represent the bell shape. The corners, A and B, are sharp, and line A, B, that would be the working face, is flat. So I changed it in this way. The corners, A and B, were rounded by E, F, and H, J, and the face rounded by F, G, H, which gives the bell shape, oval face and rounded corners.

Fig. 7



Now, if we subject this point to the same study of forces, what do we find? Force given off in the center at "A" will be delivered on a line with the resistance, so the force will be projected directly ahead; but at either side of the center the force is given off so as to force the gold in a direction at a greater or less angle to the resistance, as at "B" to "C," and it meets the resistance forming the angle "B-C-D."

Now however obtuse this angle may be, if the direction of the gold and the resistance are not in a continuous line the force will be diverted, making lateral force of it and causing the gold to spread at every blow of the mallet. The spreading under force of this kind is not a spreading deep in the filling, but at the surface upon which the force is delivered. With this force the gold can be literally coaxed out of ridges and bunches, and can be moulded in a manner that is a surprise to any one at its first demonstration.

As the plugger is worked from the center of the filling toward the sides, one can see the gold go with it, so the gold is naturally made higher at the walls than in the center.

The next study of force is how the rounded corners condense the gold near the walls.

Drawing lines at right angles to the surface will give the direction of the force, and I think the question is so plainly answered that I need but show the illustration.

Fig. 8

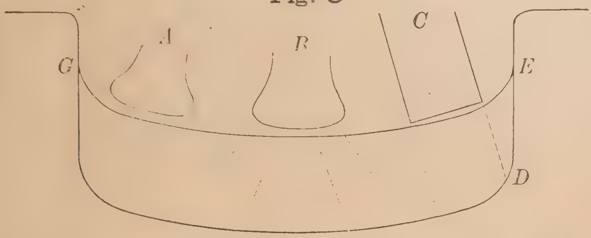


Figure 8 will show you why the force delivered by a flat-faced plugger has a tendency to draw the gold away from the walls of the cavity. Also how force delivered by a bell-shaped plugger forces the gold to the wall.

A blow delivered to "A" will force the gold closer to the wall at point "G," and the blow upon "C" will force the gold toward "D," while the gold at "E" is not pushed to the wall but is drawn away from it.

The lines drawn from the face of "B" show the direction of the force delivered by it, demonstrating clearly why the tendency is at all times to drive the gold to the walls. This explains the spreading of gold which I have shown you. This is the reason that in using the plastics they seem to creep out from under the oval-faced plugger toward the walls of the cavity, and adapt themselves so nicely to any inaccuracies in those walls.

For a number of years this bell-shaped plugger has been thoroughly tested, not only in my own hands but in the hands of some of the best operators in the West, and the results have led me to believe that spreading holds as important a place in the adaptation of cohesive gold as of any filling material we use.

I have now given you the principles upon which I worked to gain control over the spreading qualities of gold. I hope no one will try to fill teeth with large masses of gold and then blame my theory for their failures.

The same pains should be taken with this as with any other method of filling. Each man should experiment for himself and find out just what to expect from each gold, and just how to work it to obtain the best result.

THE WORK OF THE DENTAL CONGRESS.*

BY C. H. SIPPEL, D. D. S., CHICAGO, ILL.

Man has evolved from a mass of ignorance to an admirable genius by building one improvement upon another. Rude hieroglyphics were the germs of the printing press. The dug-out was the nucleus of the gigantic steamer that braves breakers and thousands of miles of billows without a tremor of her mighty iron frame.

From the idea of the stars being set in a solid sphere, man has advanced to the conception of the "stellar universe." From the ignorant savage who superstitiously gazed into the starry heavens, he has advanced to an Adams and Le Verrier, who, by mathematical deductions, located Neptune from the discrepancies of Uranus.

From the ancient Egyptian embalmer, he has advanced to the modern surgeon who wrests life from the grasp of death.

He has advanced, solved problems, annihilated impossibilities by one man using for his basis some other man's invention or discovery. Snell discovered the law of refraction. By its aid Des Cartes explained the rainbow. Priestly discovered and Lavoisier afterward developed the modern view of combustion. Democritus first propounded the atomic theory. Dalton elaborated it.

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* Read before the Hayden Dental Society, September, 1893.

The French philosopher, Ampere, generalized and extended it, and upon this basis Thomson, Cooke, Taite and others have been building the entire superstructure of chemistry and physics.

Conceptions frequently germinate in one mind and mature in another. A mere suggestion has sometimes created in the mind of the second person the germ-thought of a marvelous invention. Hence, the exchange of ideas is the great stimulus of human advancement, and international conventions, by bringing men together and familiarizing them with new ideas and methods, never fail to quicken the mind and accelerate the steps of progress.

It therefore requires a livelier imagination than mine to justly picture the effect of the "World's Columbian Dental Congress," since it was the aggregation of the best material the world of dentistry could produce. The pioneers of dentistry had come from Uruguay in the south to Finland in the north; from the far off isolated Hawaiian Islands in the west to Japan and Australia on the eastern outskirts of the world. The remotest parts of the earth had been brought together. The science and philosophy of Germany, France and England mingled with the inventive genius of the United States. All had gathered to disseminate and to acquire knowledge. Each was a teacher, each was a student. The fire of genius was burning and the spirit of enthusiasm was effervescing. A solidarity of interests had been created whose philanthropic heart was passionately beating in the center of the United States, and the new and helpful ideas or discoveries became the common possession of the world.

The eight different sections into which the congress had been divided made possible an infinite amount of work, and afforded each member an opportunity to attend exclusively that particular department toward which he was naturally inclined. But this arrangement also had its disadvantage, inasmuch as no one could be benefited by more than one-eighth of the amount of work done.

Dr. Zsigmondy's paper on "The Pits and Depressions in the Enamel," read before the General Assembly, showed remarkable research and admirable efforts to locate the real cause. His supposition was, that they might be due to fevers and suffocations, as in whooping cough, during the process of calcification, or that they might be congenital. Dr. Cunningham said the scientific dentists of Europe had given the subject a great deal of thought, but so far had failed to satisfactorily solve the problem.

Dr. Reynolds explained, in Sec. 2, the concomitance of adenoid growths in the nose and the high and apparently contracted arch. The adenoid growths caused mouth breathing, which in turn elevated the roof of the mouth by the atmospheric pressure. Dr. Fillebrown differed with Dr. Reynolds on this point. In his opinion the pressure of the air does not produce high vaults; but, the mouth being continually open during oral respiration, the force of gravity causes an abnormal downward development of the upper maxillary bones.

In my estimation the first is the better theory of the two, since, during nasal respiration, the jaws are not in contact, and therefore the lower jaw offers no greater resistance to the downward development of the upper alveolar process than if the mouth was wide open. While the tongue, during mouth breathing, lies at the bottom of the mouth, forming an inclined plane, which causes the inhaled current to assume a posteriorly upward direction, and rush with full force against the soft palate.

In Sec. 5 Dr. Fillebrown gave a good explanation why a nerve which is cut off squarely, as a rule, gives no future trouble, while one that is torn frequently does. In tearing the nerve, small filaments or fibers are left protruding from the point of separation, and during the process of granulation the contraction of the new intertissue produces pressure on the projecting fibers, and pain is the result.

Dr. L. C. Ingersoll presented a unique paper on the "Relation of Predisposing Causes to the Active Causes of Dental Decay." He confined himself almost entirely to the immediate or exciting causes, since the predisposing presented such a wide and uncertain field. He applied the lash of ridicule to the germ enthusiast, who carries that doctrine to laughable extremes; who refuses to carry old bills of paper money, because these valuable certificates might be infected with malicious germs; and whose wife's lips have to be thoroughly boiled and disinfected before he consents to the process of osculation. Prophylaxis, to which nature devoted her noble efforts, was the great antagonist of decay, and without which our teeth would crumble away in a short space of time.

Dr. Miller, of Berlin, modifies the Herbst method of treating diseased dental pulps. He removes the pulp stumps out of the larger canals and attempts to pickle or mummify those in the smaller and more tortuous ones instead of attempting to keep them alive. He covers the stumps with antiseptic troches over which cement is flowed. But whether a body which at one end communicates with living tissue can be successfully pickled, is a question.

Perhaps no other man crowned himself with as much glory and deserved his laurels better than did Dr. Brophy. His new cleft palate operation made him the plumed knight of the congress. Dr. Barrett and other eminent oral surgeons enthusiastically lauded the operation, and in the most flattering terms paid Dr. Brophy their tribute of gratitude and respect:

Dr. Brophy performs the operation in early infancy—from one to five weeks after birth. He first pares the edges of the cleft, removing the mucous membrane and a layer of the bone. Then he drills a hole through the maxillary bone on each side, making a free opening from side to side immediately above the palatal plate. Through this he passes a double wire, held on each side by a perforated lead button resting on the buccal surface of the bone. He now raises up the cheek, separates the mucous membrane just below the orbit, and divides the bone at the Malar process, thus separating the maxillary from the tissues above. Then by twisting the wires together he brings the edges of the cleft into contact.

This operation leaves sufficient soft tissue to close the posterior nares, which secures a perfect articulation. While in the older operations, of making sections in the tensor palati muscles and stretching the soft parts together by means of ligatures, the tissues shorten posteriorly anteriorly leaving an opening between the nose and the mouth. In the Brophy operation, being performed in early life, the velum, should the soft tissues be scarce, develops to its normal size from continual use.

Dr. Whitney, of Honolulu in his magnificent paper, "Among the Ancient Hawaiians,'' said that while it was evident that as the nation progressed the condition of the dental organs retrograded and dental suffering became more common, which was undoubtedly due to the radical change in their food, from the harmless poi, raw fish, and mild fruits to the starchy foods, cooked meats, and acid fruits; yet not more than twenty-five per cent of all the ancient skulls which he had examined were free from dental caries. All the dental diseases with which we were afflicted, burdened the lives of this strong and well developed ancient people. He refuted the doctrine, that the third molar is gradually becoming extinct and that in a few generations hence it will have almost entirely disappeared, by stating that its absence in skulls found in coral rock and under lava beds, indicating an existence as early as 500, A. D., was as common as it is to-day. The theory, that irregularities are due to intermarriages of different peoples, found little support in a study of these skulls; since among these people who had lived for 1,400 years isolated and alone, irregularities were as prevalent as in our mixed races of to-day.

The most interesting paper read before the general session was that of Dr. Fillebrown on "Hypnotic Suggestions as a Dental Obtundent and Sedative." He confined himself wholly to arguments antagonizing the prejudice that existed against hypnotism, and to reciting interesting cases which he had had in his practice. The paper attracted such a large audience, and absorbed such universal attention, I suppose largely on account of the mystery which enshrines hypnotism to the average mind. It is something of which the average person has heard, but has never given any considerable amount of thought. It has woven its way down to us from antiquity, cropping out here and there, and then apparently fading away again for intervals of many years. As far back as history records the deeds of man, and even in tradition, diseases are alleged to have been affected by the touch of the hand of certain persons. Among the Egyptians, Babylonians, Hindus, Greeks, and Romans, priests effected cures and caused people to fall asleep. These influences were then regarded as supernatural. In the fore part of the eighteenth century, Gassner, Mesmer, and others had remarkable influence over the nervous systems of their patients. They also believed themselves endowed with a supernatural power. But recently it has drifted into the domain of science, which has caused a revival, and the investigations of scientists have again entered the halo of superstition with a natural explanation.

Heidenhain offers two explanations for the phenomena of hypnotism. His first inference was that hypnotism might be due to a reflex influence on the vessels of the brain, causing them to contract, so as to permit the passage of only a small amount of blood and make the brain anæmic. This view he had to abandon, as the faces of hypnotized persons are usually red, and not pale, as they would be were the arterioles contracted.

His second and more tenable theory is that of the inhibition of the activity of the ganglion cells of the cortex. Inhibition is known to play an important part in all nervous actions. Powerful impressions on sensory nerves may inhibit or restrain the actions of ganglion cells. Inhibition of the cerebral cortex is supposed possible by gentle prolonged stimulation of the sensory nerves of the face, or of the auditory or the optic nerves. Now, certain movements, initiated as a consequence of perception, are due to the action of certain areas of gray cells on the surface of the cerebral hemispheres, while another class of movements does not require the agency of these surface cells, but depend upon the activity of deeper centers. One of these centers, for instance, is the corpora quadrigemina, which receives luminous impressions from the retina. In case of conscious and voluntary movements, carried out as the result of visual impressions, the excitations pass first from the retina to the corpora quadrigemina, from there to the cerebral hemispheres, where consciousness is aroused, and volitional impulses generated. They are then transmitted downward through the carpora striata and spinal cord to the particular group of muscles. Now, suppose that one set of sensory or recipient cells in the brain have been brought into a state of exalted irritability by the preliminary operations of hypnotism, resulting in inhibition of those particular parts of the cortex. Let a similar vision pass before the eyes. Again the path of nervous impulses will be to the corpora quadrigemina, but from there, instead of first passing to the cerebral hemispheres, it is directly transmitted through the corpora striata, etc., to the muscles causing movements as exact and precise as those of the first instance. In the first case there is consciousness, ideation and volition, while in the latter there is not, and the movements are not the commands of the ego. This explains the automatic phenomena of the hypnotized individual, and in the same way, I think, may be explained the insensibility to pain.

Suppose the operator stands behind his patient holding a glittering object at which the patient fixedly stares. The attention is fixed on one set of sensory impressions and fatigue soon begins to set in. There is a dazzling feeling. Images become blurred and indistinct and seem to swim in the field of vision. The field of vision becomes unsteady, the cerebral hemispheres become inhibited from this strain and consciousness slowly passes away. Peripheral impulses are transmitted to the optic thalm, but not to the cortex, the seat of consciousness, and hence no realization of pain.

During the discussion of Dr. Fillebrown's paper, a biblical enthusiast caused some amusement by expressing his disbelief in hypnotism just because he could not reconcile it and the acceptance of the Bible. Such an antiquated and fossilized manner of testing a new science was certainly sufficient to excite the ludicrous in a most saintly and consecrated audience.

The schools of Athens were closed by Justinian because he could not reconcile their teachings and those of Christianity. The sphericity of the earth, the accepted evolution theory of cosmogony, and almost every improvement in the moral and scientific world has been opposed and impeded by just that sort of an argument. Man has discovered facts and truths, has improved his morals, has scaled the dizzy heights of his present excellence by acquainting himself with *nature* and *not* by acquainting himself with the Bible. The men who have made the advancement, who constitute the pillars on which our present melioration rests, have been men who have troubled their brains very little about the Bible, and who had more confidence in their observations and reason than in their creeds. Columbus was a Catholic, but he certainly had more confidence in his idea of reaching India by sailing directly westward, than in all the popes and bishops he had ever seen. Magellan saw the shadow of the earth on the moon and had more faith in that shadow than in all the omniscient theologians the world had produced. Those who have placed Faith before Reason have always resisted the eagles of progress and retarded the harbingers of truth. "During that frightful period known as the 'Dark Ages,' Faith reigned. Her temples were 'carpeted with knees,' and the wealth of nations adorned her countless shrines. The great painters prostituted their genius to immortalize her vagaries, while the poets enshrined them in song. At her bidding man covered the earth with blood. The scales of justice were turned with her gold, and for her use were invented all the cunning instruments of pain. She built cathedrals for God and dungeons for men. She peopled the clouds with angels and the earth with slaves."

Science advanced, religions reluctantly dragged after. By discovering and demonstrating facts contrary to the dogmas of the church, it has continually compelled the creeds to be remolded and purged. In speaking of the causes of the Reformation, Prof. Meyers says: "The Humanists either fell into religious indifference and skepticism, or restating their creeds, which they found in conflict with the new learning, reached worthier and higher beliefs. We see the same thing going on to-day. The rapid advance of science is creating an apparent conflict between knowledge and belief. The result is either the flinging aside of all creeds or the modification of them, so as to bring faith into harmony with present knowledge."

When faith was supreme, and arguments like the one above against hypnotism were in vogue, thought was suppressed, research was condemned, and science pressed its "pale and thoughtful face against the prison bars." But science has broken down the prison doors, subordinated faith, and emancipated reason. The astronomer now explores the heavens unmolested, the chemist communicates with the elements, and the geologist reads solemn truths from the stony pages of the earth.

PRESIDENT'S ADDRESS.

BY DR. C. H. GOODRICH, ST. PAUL, MINN.*

The Minnesota State Dental Association meets for its tenth annual session; meets for the interchange of ideas in open session, and for the interchange of ideas in secret session, and also for fraternal greetings and good wishes.

I say we meet for the purpose of interchange of ideas in secret session as well as in open session. This phraseology may seem to you to be peculiar, but I make use of it to illustrate the fact that there are several members of the society who interchange ideas in what might rightly be called secret session. It frequently happens that two or three members will discuss a subject before it is passed, and afterward more good points and more knowledge will be obtained by a few from their interchange of ideas in secret session than were obtained in open session.

Will not the members kindly assist in making this a never-to-be-forgotten meeting, by coming forward in the discussions, and let us have a word from every one on every subject brought under consideration?

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*Read before the Minnesota Dental Convention.

The year just passed has been the most active year the dental profession at large has ever witnessed. Individual members have been active to further the interests of the World's Columbian Dental Congress, the members of the profession in this State have had their shoulders to the wheel, and the result has been most gratifying, not only to the active members, but also to those members whose silent energy and financial responses have been the means of assisting in carrying to a completion the greatest meeting ever undertaken in the annals of dentistry. The World's Columbian Dental Congress is a thing of the past and belongs to history, but while time has made the congress a reality, and from reality has placed the proceedings among the archives of the profession as a memorial to future generations, we must not forget that we individually have a greater responsibility than ever before.

On account of this congress the attention of the public has been attracted to our profession as never before, and we are under the responsibility of seeing that every effort is made to further the interest and raise the standard of our profession in the estimation of the public. It is all well enough for the different dental societies to meet and formulate plans and laws, which in combination with individual energy, shall tend to build up the standard of our profession, but here is a grand opportunity, and let us not lose sight of it.

The usually placid surface of the profession in this State has been shaken during the year by slight upheavals of passionate discord, and while we are extremely sorry that such have taken place, and that slight waves or vibrations of this upheaval will probably be felt in this society, yet we feel that the old saying, "True love never did run smooth," fits aptly to this case, and as the participants in this upheaval come to a realization of their mistakes, and meeting, look beyond the present into the future, realizing the smallness of all things earthly, find friendship, instead of enmity, and are benefited to that degree that there will be no more partings here, so will this society, according as its members find fraternity and peace with each other, and with those not listed among its members, build itself up into a solid, compact body of professional men whose teachings will go out as seed sown in good ground, and which will spring up and bring forth a rich harvest.

The change of date of meeting is, it is hoped, a move in the right direction, and one that should benefit this society by bringing more of the members of the profession in this State who live outside of the Twin Cities to our meetings.

The programme for the meeting should be published, and a copy placed in the hands of every dentist in the State a full month before the date of meeting. The performance of this duty will enable the active practitioners to have plenty of time to arrange for the meeting, to note and look up the subjects which are to appear before the meeting in the shape of papers and lectures, and to make other arrangements for the enjoyment of the meeting, as he may elect. In this particular I think the executive committee could do a little missionary work among themselves, and it should be the duty of every member to be thoroughly familiar with the programme and its contents, so as to be able to render their share, so that the meeting will be full of vigor and learning.

I do not believe that it is proper to take up the time of a society limited to an average of six hours per day for three days, by the reading of scientific papers on the development of elephants' teeth and kindred subjects, when there is so much to talk about the human teeth and the human oral cavity. Papers on such subjects spoken of should be written and published that the active practitioner may read and digest them at his leisure.

The State of Minnesota should have a dental journal for the publication of the proceedings of the dental societies within its borders. There are now four active dental societies in this State—the Minnesota Dental Association, the Southern Minnesota Dental Association, the St. Paul Dental Society, and the Minneapolis Dental Society. Here is enough activity, it seems to me, for the maintenance of a dental journal, but should this prove to be a more arduous task than one would care to undertake, it might be well to have an understanding with some one of the journals, in order that the proceedings of the different societies be published, or arrangements might be made with some publishing house to issue monthly a journal or pamphlet containing minutes of some dental meeting in the State, which would be the means of getting a stronger fraternity for this State than any other means which could be adopted. I have thought that a sort of "Dental Chautauqua" could be established by a dental society; a series of questions could be formulated and sent out by a committee appointed for that purpose, a certain number of questions to be answered by the 10th of each month, the answers then to be compiled into a series of papers to be read and discussed by the society at its annual meeting. It seems to me that some such an arrangement as this would make a system of study and work which would greatly facilitate the workings of the executive committee in preparing a programme for the meeting, and would stimulate each one of us into investigation and study, which could be done leisurely throughout the year. This would benefit us by bringing us into contact with subjects we would not otherwise look up or think about.

Providence has smiled upon us during the year and we meet with a full membership. Nature, governed by a wise, all-seeing power, has dealt kindly with us and enabled us to live through all the trials and baffle all the diseases of ten years of active society life, and to-day we are standing erect and strong, and with the knowledge of a hidden power which, if nourished rightly, will add to our height and breadth. I congratulate the fathers of this society on its tenth annual session because of the strength of their child. Ten years of life which have been spent as a society have been spent in rearing what we have before us to-day, a child, whose advent caused an eruptive fever that nearly brought death, and which caused its parent anxious moments, recovered and grown strong. It cut its teeth on the rim of the law books and with its hands tore out the inner pages, and to-day, as the result of its birth and its mirth, we have a fraternity whose veins are filled with pure blood because of its fevers, and whose law is the dental law of the land. Because of its birth we received knowledge, and knowledge brought power, and knowledge and power are united under the waving pennant of the University of Minnesota. And so, my friends, I congratulate you that this child of yours has grown in grace, beauty and strength, and although but ten years old, has added strength to its loins year by year and to-day stands before us full of vigor! Let us see to it that each one of us feeds it with wholesome food so it will continue to grow and do good, not only to us, but to all members of the profession.

OXYPHOSPHATE AS AN ADHESIVE MEDIUM.

BY J. C. ST. JOHN, D. D. S., MINNEAPOLIS, MINN.

In the use of any filling material a careful manipulation and adaptation of it to the surfaces over which it is to be placed is a necessity. The more perfectly this is accomplished the better will be the result. This is especially true of metals. In amalgam we have a substance which requires a more positively grooved cavity than does gold and one formed on different principles as to beveling at the margins.

Dr. Chas. P. Pruyn of Chicago, in discussing a paper before section six of the World's Columbian Dental Congress, said that if one would procure a piece of glass tubing and cut it into small sections, then plug up one end of each and cover the surface with paper, so that it would be impossible to look through the glass while operating, then fill each one carefully, as we would a cavity, after doing which, upon removing the paper, he would have the conceit taken out of him, as the supposed perfect adaptation to the walls would be seen to be quite the reverse.

It is true, nevertheless, that a smooth surfaced glass tube would be more difficult to adapt amalgam to than it would if there were grooves or pits here and there, in which a little amalgam would lodge and thus prevent the mass from slipping over the surface instead of remaining where it was first placed.

Notwithstanding this fact, however, the close adaptation to the smooth surface must be gained by wedging the material in against it with force, as there is no adhesion between such a wall and the metal, and the more force applied, the more perfect will be the joint.

If we had an adhesive amalgam which would adhere to any smooth surface where it was once placed, then the filling of a smooth glass tube would be an easy matter and the surface could easily be made to appear perfect even though the body of the filling was not carefully packed.

We have not such an amalgam, but I am prepared to demonstrate the fact that amalgam can be adapted to the walls of a cavity by a method which insures adhesion between the two substances.

In joining pieces of porcelain or wood, there must be some material to fill the intervening space and make a perfect joint. We will therefore first consider the subject of cements.

The different parts of a solid are held together by attraction between their several particles, which is termed the attraction of cohesion, cohesive attraction.

The amount of this varies with the substance; thus the cohesion of the particles of iron to one another is great, while that between those of chalk is but small.

This attraction lasts only when the particles are in the closest possible contact. Even air must not be between them.

If, after breaking any substance, we could bring the particles into as close a contact as before, and remove the air, they would reunite and be as strongly connected as ever. But, in general, this is impossible; small particles of grit and dust get beween them; the film of interposed air cannot be removed; and thus, however firmly we press the edges of a broken cup together, it remains cracked china still. Perfectly flat, clean surfaces, like those of freshly ground plate glass, may still be made to cohere, so that the two pieces become one and cannot be separated without breaking, The attraction of cohesion takes place between the parts of the same substances, and must not be confounded with that of adhesion, which is the attraction of different substances to one another. And it is important that this distinction be borne in mind, for, in almost all cases, the cohesion between the particles of the cement is much less than the adhesion of the cement to other bodies; and if torn apart, the connected joint gives away, not by loosening of the adhesion, but by the layer of cement splitting down the center.

Hence the important rule, that the less cement in a joint the stronger it is. Domestic manipulators usually reverse this, by letting as much cement as possible remain in the joint, which is therefore, necessarily a weak one. A thick, nearly solid cement which cannot be pressed out of the joint is always inferior to a thinner one of which merely a connecting film remains between the united surfaces. Then, to secure the greatest amount of adhesion between the walls of a cavity and any metal, we must use a cement; understanding the most desirable qualities for that to possess, we mix some one of the good oxyphosphate cements, which is always at hand, very thin and are then ready to fill the cavity. The amount of cement to be left in the cavity is usually small; so that it is seldom necessary to carry but a small amount to the most accessible wall of the cavity, where it is scraped off of the instrument at the margin of the cavity. No particular attempt is at this time made to spread it over the walls of the cavity as it will not always be an easy thing to do and much valuable time will be lost. Enough amalgam to make a thin layer all over the walls of the cavity, and of the right consistency to permit its being readily and perfectly adapted to the same is then placed in the cement and quickly carried, forcing the cement and air ahead of it, all over the walls of the cavity until they are completely covered. It is to be pressed home with as much force as the case will admit of. Any surplus of cement will, after this treatment, show itself at the margins of the cavity.

To insure a perfect metal contact of the filling at all margins, no matter how remote they may be, it is simply necessary to carry a properly shaped excavator around these margins, and remove both the metal and cement at the enamel edge of the cavity.

It will be found that this layer of amalgam so adapted will remain where first placed, and the remainder of the filling may be built up after any method which is indicated.

I have my preference of the different methods usually employed, but it is not my intention to discuss them in this paper. From using cement thick and in large quantities, in large cavities, and allowing it to harden before covering with metal, I have gradually worked my way through the process of introducing the amalgam into a thick mix of cement before it became hard, trunnioning it into it, as it were, or working the first piece of amalgam into the cement until the two were well mixed together, up to the method herein presented to you. I use it everywhere, in "pin-head" cavities as well as in very large ones; against frail, thin walls; in restorations and overcappings.

Moisture being kept from the amalgam it does not tarnish, at the same time sufficient cement remains in the joint to prevent any metallic color being noticed through the thinnest wall.

Hydrogen Di-Oxid and its Manufacture.

By N. K. Garhart, Indianapolis, Ind.

One of the most remarkable and useful compounds discovered to chemistry is hydrogen di-oxid, and the purpose of this paper is to impart a general knowledge of the process and difficulties of its manufacture, and to touch upon such points as contribute to the stability of this compound and its usefulness to dentistry.

Barium di-oxid is the most important chemical product used in the manufacture of hydrogen di-oxid, together with the acids that go to form insoluble barium salts. The acids in general use for this manufacture are hydrofluoric, sulphuric, hydrofluo-silicic, phosphoric and carbonic, all of which form insoluble salts with barium. It may be of interest in this connection to observe that each mannfacturer has his particular preference among the acids that have been named.

One of the most important steps in the manufacture of hydrogen di-oxid ($H_2 O_2$) is the perfect hydration of barium di-oxid, ($Ba\ O_2$)—which is accomplished by mixing this salt with water. The mixture should stand from four to six hours, which is sufficient time to insure complete hydration. The reaction which takes place is merely a chemical union of one molecule of barium di-oxid ($Ba\ O_2$) with eight molecules of water ($8\ H_2 O$). This process may be called slaking, and is very similar to the slaking of lime; the milk of barium thus produced is due to suspended crystals of hydrated per-oxid of barium ($Ba\ O_2\ 5\text{-}H_2O$). The hydrated compound is transferred to a suitable container, surrounded with crushed ice and provided with a mechanical device for stirring. The proper volume of distilled water is next added, also the dilute acid in small quantities at a time. An excess of acid is generally used in order to thoroughly decompose all of the hydrated barium per-oxid. The reaction is complete when the precipitate assumes a granular appearance and rapidly sinks to the bottom of the container. At this stage the excess of acid is removed by careful addition of a solution of barium hydroxid ($Ba\ H_2\ O_2$) until the solution becomes neutral. Purification of the hydrogen di-oxid solution is an important step, it depends upon the complete removal of all salts of barium, or any salts of lime, magnesium or iron which generally are concomitant with commercial barium di-oxid. Any of the metallic salts affect stability of hydrogen di-oxid solutions and they must be entirely removed, even traces of them. Manufacturers extend every precaution when purchasing chemicals for the production of hydrogen di-oxid, some of them purify commercial barium di-oxid by the nitric acid process, which consists in dissolving the salt in dilute nitric acid and carefully precipitating the same by addition of an alkali, the hydrated barium di-oxid is thus precipitated chemically pure.

When hydrofluoric acid is used to decompose the barium salt, cylindrical tanks of lead are resorted to; crockery or other silicious ware cannot be used owing to the corrosive influence of this acid. The acids most used are sulphuric, hydrofluoric and phosphoric; carbonic acid does not give the best of results. Upon purification of the acid solution of hydrogen di-oxid by addition of barium hydroxid, the solution must not be alkaline, (the alkalinity is due to the excess of barium hydroxid used) otherwise it will speedily decompose upon filtering. The purified solution is filtered, and the filter used is a simply constructed wooden frame covered with muslin.

The chemical reaction between the acids and barium di-oxid may be explained as follows: The *hydrogen* of the acid replaces the element *barium*, as

$$\mathrm{Ba\,O_2 + H_2\,SO_4 = \underset{\text{(insoluble.)}}{Ba\,SO_4} + H_2O_2}$$

A stable article of hydrogen di-oxid, has been a want long felt, and the ideal preparation was first successfully produced several years since; until then the cause of the rapid decomposition was not definitely known, but was supposed to be due to the chemical construction and not in the least attributable to attendant impurities. The feeble affinity of the extra atom of oxygen, is still the great trouble, yet if that peculiarity did not exist it would be valueless to dentistry. No one solution can be relied upon at all times. The ease with which it decomposes by catalysis resulting from mineral salts has been one of the main difficulties to be overcome, hence a perfect solution depends upon their complete removal. Absolutely pure distilled water is very essential. The varying quantities of mineral salts and organic matter found in fresh water supplies are detrimental. The action of mineral salts has already been explained sufficiently. Absolute removal of organic and mineral salts is imperative and is accomplished by careful distillation.

An important discovery is the fact that while preparations of hydrogen di-oxid are very unstable in neutral or alkaline solutions, the small addition of acids acts as true preservative. Some manufacturers make the great error of adding too much to their product, rendering the same unfit for dental use; the escharotic property of excessively acid preparations are highly injurious to the enamel of the teeth as well as other delicate tissue. The Oakland Chemical Company of New York are entitled to the credit of having placed upon the market the first three per cent solution of hydrogen dioxid. The product of this firm was brought more prominently into notice through the analyses of a number of reputable preparations in the laboratory of Dr. Squibb, the celebrated manufacturer of ether and chloroform. Of the numerous brands analyzed all were found to contain barium salts and other impurities, with the exception of that of the Oakland Chemical Company, and the indicated strength of all other preparations was found to be less than one-half of what their labels called for. The strength of the Oakland Company's product was unapproached by other makes. A confirmation of these results soon after appeared in the reports issued by the noted Eastern chemist, Dr. Leffman, who analyzed six different preparations, among them that of the Oakland Chemical Company, which gave 15.6 volumes, while the highest obtained on other makes was a little over 9.0, thus proving that the first-named preparation ran over three per cent, or almost one volume extra.

The extreme carefulness exercised in their work by this company enables them to secure stability of their preparation. They employ absolutely pure, distilled water, chemically pure salts and acids, and maintain extreme cleanliness during the process of manufacture; the finished product of this company is very faintly acid, and contains no trace of mineral matter. As their whole efforts were directed in presenting their article before the medical profession, the dental profession know practically nothing of its merits. About a half a year ago, McKesson & Robbins of New York introduced their stable articles of hydrogen dioxid to both medical and dental professions, and have established the same principles in their manufacture as obtain with the Oakland Chemical Company.

The introduction of etherial solutions upon the market is a new feature, but the discovery that hydrogen di-oxid is very soluble in ether was made many years ago. The method for producing etherial solutions of pyrozone is not exactly known except to the manufacturers. Absolute hydrogen di-oxid has been obtained by the following process: a flat, open vessel containing a concentrated aqueous solution of hydrogen di-oxid is placed in an air-tight compartment. The air-tight compartment is provided with lead pans containing concentrated sulphuric acid. The apparatus or desiccator is refrigerated by surrounding it with ice. The acid is changed daily, and fresh being substituted until the volume of acid remains unchanged, which signifies that all of the water has been absorbed by the acid. Absolute hydrogen di-oxid so obtained is a colorless syrupy liquid decomposing rapidly upon elevation of temperature; in the anhydrous state it is very difficult to keep, even at low temperatures. It readily dissolves in ether. It can also be prepared by dissolving out the hydrogen di-oxid, by shaking the aqueous solution with ether and separating the etherial solution with the aid of a separatory funnel, and then evaporating the ether in a current of cold air.

The specific therapeutic values of hydrogen di-oxid, are confined to its action upon pus; its escharotic properties according to the degrees of concentration, and its antiseptic action. Its action upon pus is chemical, and not due to asepsis. Pus possesses the same peculiar character of unstableness as hydrogen di-oxid, and in the presence of any oxidizing agent decomposes into carbon di-oxid and water. The escharotic properties are valuable because after the action is over no by-products are formed which cause discoloration of tissue, as in case of nitrate of silver, chromic acid, etc.

There are to-day, antiseptics far more valuable than hydrogen di-oxid, and always reliable as to strength, as for instance hydronaphthol, which occupies a position in the field of asepsis, unapproached by other organic antiseptics for activity, stability and non-corrosive properties.

THE RELIEF OF PAIN FROM DISEASES OF THE DENTAL PULP AND PERIDENTAL MEMBRANE.

BY A. W. HARLAN, M. D., D. D. S., CHICAGO, ILL.

The dental pulp is a frequent cause of pain after near or actual exposure of its surface to external agencies. When the pulp is exposed by accident the pain is easily relieved by protecting it from the air or moisture with chloral camphor, phenol camphor, oleate of cocaine, melted carbolic acid or other local anæsthetic. The surface should be dried if possible before making the application. A mixture of collodion and carbolic acid, ten or twenty per cent, will serve as a temporary dressing. Twenty parts of carbolic acid, five parts of the hydrochlorate of cocaine and seventy-five parts of liquid vaseline will arrest pain from exposure of the pulp

I have frequently used twenty parts of a four per cent solution of cocaine, thirty parts of pure oil of sassafras and fifty parts of melted carbolic acid as a local covering. This is only slightly caustic or escharotic. The bottle should be shaken before using when the mixture is fresh. The pain from a hyperæmic pulp is quickly relieved by puncture, when possible, if not, torsion will sometimes relieve the pain. Remedies administered internally for retarding the circulation will seldom be effective in relieving the hyperæmic condition. Sometimes when torsion is practiced the addition of counterirritation may relieve the pain. When the pulp of a tooth has been capped with any material before it is in a normal condition, there may be pain continuous or intermittent. Should this continue in spite of torsion or counterirritation the filling must be removed. Even this will not always relieve the pain and the pulp may have to be destroyed before the pain will cease. Of course it is understood that a pulp should not be capped when irritated or inflamed, but many pulps are capped in this condition and the only salvation for them is to remove the capping.

The pain from a pulp where calcification of its substance is going on cannot be relieved permanently save by destruction of the organ. If the patient can endure the pain in a course of time the pulp will be obliterated. Usually the patient will not endure such agony for very long and unless relief is afforded the tooth will be extracted by some other dentist.

The pain from congestion of the pulp and the formation of pus in its substance can only be relieved by getting direct access to it and pricking it to relieve the overfull vessels. After the tension has been relieved the pain does not always cease. It has been a favorite method with me to wash the cavity with peroxide of hydrogen at once and quickly dry the cavity; apply pure chloroform on cotton, then melted carbolic acid. In five or ten minutes the patient will be comfortable. It is my theory to destroy the pulp if there is no probability of saving it. I might attempt to coax it back to health if it were an exposed front tooth in a young person's mouth. There are few cases where it is possible to retain the vitality of a pulp after suppuration of a small portion of its substance. The mere puncturing of a pulp with a sharp pointed instrument to relieve congestion or hyperæmia is not always sufficient reason for the destruction of a pulp unless the vital powers are low or the patient is past fifty years of age; then the recuperative forces may not be sufficient to enable it to live under a capping. Drying the surface of a suddenly exposed pulp and painting it with collodion will arrest pain. When the pulp is dead and the pain results from pressure of pus beyond the apex, the manifest duty of the surgeon is to give it exit, through the root canal or by drilling into the alveolus through the process. If a simple pericementitis has to be dealt with, calcium sulphide 1–10 gr. pill every ten minutes until six have been taken will ordinarily arrest pain. Prior to this an aperient may be administered. Citrate of magnesia, a Seidlitz powder, hunyadi janos, or some other internal remedy. Counterirritation, tincture of capsicum, cantharides, ammonia, chloroform, absolute alcohol or a metal disc of the size and thickness of a copper cent dropped in boiling water before using it. When there is a pocket alongside the root wash with pyrozone, then inject into the pocket two or three drops of vinum opii or a twenty per cent solution of menthol in alcohol, or ten per cent acid carbolic in liquid vaseline. Bathe the face in hot water, place towels or napkins on the face after dipping them in hot water 140° F. Keep changing them and relief will come. When the pulp is exposed at the apex destroy it.

PROCEEDINGS OF SOCIETIES.

Chicago Dental Society.

Regular meeting, November 7, 1893, Dr. J. W. Wassall, President, in the chair.

Dr. E. A. Royce read a paper entitled "Spreading Properties of Gold."

Dr. J. A. Swasey was called upon to open the discussion. He said: Mr. President, I was somewhat surprised when I received a postal card yesterday morning to the effect that I was to open the discussion on this subject. I could not exactly explain it because I never have had any conversation with Dr. Royce with regard to his method. However, I want to endorse a portion of his paper, as much as to say that he has very ably and clearly described his method, and I consider many of the points very well taken. I have for a great many years used convex points that were made for myself in all my foot instruments, small and large, and have used them in that way, and while I have not considered I was spreading the gold, in reality it has enabled me to get a smooth surface on my filling as I was adapting it to the cavity. If it got a little rough, I would pick up a covex plugger and go over it quickly, leveling the filling. I suppose Dr. Royce will say, and perhaps it does, spread the fillings at times. I thought when I received the postal card, as far as my experience had gone, the more I hammered the gold the less it spread, and the smaller it grew. But since I have listened to this paper, I do not know but what I shall have to endorse the ideas of Dr. Royce.

The drawings of the three points he has exhibited are a little exaggerated, as I do not believe any one ever saw a plugger that had as square a point. I think you will find that most of the points, if you look at them closely, are not flat across the end. I have an old one made by Dr. Atkinson at least fifteen or twenty years ago. It was very large. When I placed my gold in the cavity, which I did in ropes rolled up, to cover the floor of the cavity, I used it because it is more convex that any of the others; it is a little broader and has a little angle. Another thing is the bell shape. I have one of Dr. Cushing's that I sometimes use. I find an objection to the bell shape if the filling is not pretty well condensed, because as it enters in it is apt to draw back the edges of the gold.

I do not know as I can say anything more on this subject. I shall have to try this method a little more in order to know more about it, and find out whether gold does spread or not.

The criticism I make is that the points are too flat on the end, judging from the drawings.

Dr. W. H. Taggart: I understand that Dr. Royce has had some difficulty in having these points properly made, and I would ask him to explain the difficulty he has encountered in that direction, and to state in what way it can be remedied.

Dr. Royce: I have had a great deal of difficulty in getting these points made. As you can readily see, by examining the delivery of force, a slight curve or change in the surface of the point would make considerable difference in the effect it would have on the gold. (Dr. Royce then answered Dr. Swasey's criticism in regard to the flatness of the surface of the points by means of diagrams.)

Dr. W. B. Ames: I would like to ask Dr. Royce what experience he has had in filling glass tubes with the crystal gold and plastic gold—Watt's crystal and Stuart's plastic gold—and whether he considers them superior to foils?

Dr. ROYCE: I think my tests will cover from fifteen to twenty kinds of gold. The objection to the plastic golds, those most plastic, is that they are wasteful. The most plastic gold I have found has been crystal mat, and it is surprising how easy it goes to place in the glass tube. Dr. Martin sent me some of Nevin's gold to test awhile ago. It was nearly as good in adaptation. Watt's crystal gold comes next. It can be placed in a surprising manner. The adaptation is something that you and I cannot get with any of the pellets, or even with Williams' crystalloid, which is superior to most golds I have tried. The foil, four-folded to about forty, is a difficult thing to adapt to a glass tube.

Dr. DON M. GALLIE: The oval-shaped pluggers of Dr. Royce, I think, applies to the spreading of gold, the same as the round end of the machinist's hammer does to the spreading of iron or steel. When a machinist desires to rivet a piece of iron or steel, he does not use the flat surface of his hammer, except with which to finish up. He always commences the spreading or riveting with the round end or pean. If he tries to spread the rivet with the flat surface of the hammer, he only succeeds in marring or flattening that part with which he comes in contact; but if he uses the round or oval end he succeeds in spreading the metal beyond the surface. Now, I think the spreading of gold is similar to that of iron and steel. I believe the oval-shaped plugger should be used to spread gold, the same as the oval end of the hammer is used to spread the other metals.

Dr. J. N. CROUSE: I do not think I can add anything of interest to what has already been said. In packing gold, whether I have studied the mechanical philosophy of it or not, I think every operator that has succeeded with cohesive gold has done so with an oval point. Dr. Cushing got out a set a little more oval than would appear from the drawings we have seen this evening, about twenty-five years ago. I have that set. Fortunately they did not burn up in the Chicago fire. I only used that kind of plugger in the use of noncohesive gold, where I am going to use the wedging quality, as I call it. I would not want a flat plugger to make the gold flat. I would want to leave a place to adhere to the other edge. I think these points are especially applicable to the Bonwill mechanical mallet. You put on a flat point with square corners or oval point, you will see what difficulty you overcome by using an oval point. I have a little mallet that I have used for twenty years or more to mallet with. It has spread out lead until it is a third larger at the ends. Gold is no exception to the rule in its spreading quality. Place a piece of gold on an anvil and hammer it with a flat hammer, it is going to spread. I think it is the quality of any metal, more especially gold. A number of the older practitioners used No. 60 and No. 120 gold. One of the difficulties in the fillings would be checking of the enamel margins, and that occurs from the gold spreading out and splitting the tooth. It is seen over and over again. It will not wedge, but even when it first came out we were told to be careful not to mallet it quite so solid and yet the teeth were not cracked so very much, and the old fillings, I see them now from different operators from time to time, made with No. 60 gold, and there was never anything better. No one will see any more durable fillings. The objection was the time consumed in using it.

Dr. W. H. Taggart: I wish to endorse what Dr. Royce has said about the working qualities of gold and his plugger points. Off and on he has been showing me these points for a number of years, and apparently trying to get me interested in them. Some nine months ago he brought me the pluggers, and said he wanted me to use them. While I have been quite a worker of gold for a great many years, I must say I never put in gold fillings to my satisfaction until I used these points. I did not know the philosophy that made the gold work so smoothly until Dr. Royce explained it here to-night. As a matter of fact, the surface of the gold was smoother and better adapted to the walls of the cavity than by any other plugger point I have ever used, and with less exertion. I make this statement, having an experience in packing gold of over twenty years this fall. I think the members of the profession who will try this will have the same satisfaction in using these points that I have had.

Dr. George J. Dennis: I do not agree with some of the things that Dr. Royce has said with regard to the working qualities of gold. Possibly it is due to my limited experience in the use of gold. There are some things with reference to the use of gold with plugger points, in which I have failed to do what he has said one could do with his pluggers. These pluggers, as I believe they are made, have the serrations extend along the side of the plugger, or something of that style.

Dr. ROYCE: These serrations are longitudinal.

Dr. DENNIS: I find the gold balls up under the plugger instead of having it spread. I accounted for it somewhat in this way: The plugger would catch and carry the gold down before the larger part of the plugger, and instead of—with a small oval or square-pointed plugger—having my piece of gold take this form, it would take that form (illustrating). The whole thing seemed to curl up under, and I was not able to carry it sideways as I was able to do with an ordinary plugger. The square plugger was slightly oval, without serrations on the side. So I had for the time being to discard the use of that particular point, and take one with which I was more familiar. By taking a pellet, carrying it down in the center with the plugger, I had it curl up on either side.

I believe there is a spreading of gold under pressure. We all know that metals spread under pressure; they are malleable under pressure, yet at the same time I believe, in putting in a filling, we find that this spreading is more theoretical than practical. In putting in a filling only the part that is placed before the plugger is condensed. If we can carry a plugger of this kind sideways from the pellet of gold I believe we will have that spreading. I do not say it is not so, but I find difficulty in carrying it sideways, as I had hoped to do. After I had examined the plugger, theoretically, it seemed to be very practicable, but in practice it was not quite so successful.

Dr. C. N. JOHNSON: I want to commend the essayist for the very skillful manner in which he has presented this subject. He has argued logically in regard to the spreading qualities of gold, and I do not think any one will contradict the statement that gold will spread when malleted; but I do not see that this quality of gold is of such importance in operating on the teeth as he makes it out to be. I do not believe that it is necessary for us to take advantage of this fact in filling teeth. Supposing we have, as he has illustrated here in one of these diagrams, a well-shaped cavity, and we have the filling started in the bottom of the cavity, as he did in the case of the glass tube, I think we should depend on direct pressure against the walls, as nearly as may be, for obtaining adaptation, instead of relying upon the spreading properties of gold when malleted toward the floor of the cavity. I do not see that it is necessary to spread gold in this way even if we could do it, because it must be admitted that the mass will move with less resistance in the direction toward which the force is placed upon it. If that be true we can gain our object and adapt gold to this or that wall by varying the angle of the plugger much more readily than we could by directing it in this way (illustrating) and with less force. As I have previously remarked, I do not see that this quality of spreading of gold enters materially into the practical operation of filling teeth.

Dr. Royce has given to the profession a set of pluggers that are of great value, and just so soon as I can get a genuine set of Royce's pluggers I want them.

Their great beauty to my mind lies in the oval form given the points, thus preventing the liability to check enamel when building gold along the margins.

Dr. G. NEWKIRK: It seems to me the value of these points consist in this: If we begin a filling with noncohesive gold, there is a tendency in that to go toward the sides of the cavity. But whenever we begin to add cohesive gold, the tendency of this is not to go laterally, but to ball up, to condense centrally, to become a narrower instead of a wider and more projecting mass. The use of these points, is to overcome the tendency to contraction. They are favorable to diffusion, to spreading, to the filling of the undercuts which are apt to remain imperfectly filled by the use of a straight instrument, as Dr. Johnson suggests.

When Dr. Crouse was speaking of the spreading of lead, it seemed to me a perfect illustration of the way in which these pluggers act. The handle of the instrument which strikes the lead is almost invariably oval, very much like the surfaces of these pluggers. The tendency of the oval point in the spreading of steel or iron as referred to by Dr. Gallie, is to carry the mental laterally.

Dr. CROUSE: Supposing you take No. 20 gold and lay it on flat, is that going to ball up—is it going to grow smaller as you strike it with any kind of plugger?

Dr. NEWKIRK: With a flat plugger it will simply go in the direction of the force and no farther.

Dr. E. M. S. FERNANDEZ: I am glad to see so many dentists coming to the use of convex points for gold fillings, but I am sorry to hear that so many of our old practitioners have been using them and not told us about it. I have been advocating their use for some time. Perhaps Dr. Johnson may not remember it, but about twelve years ago some New York man put out a set of convex surface pluggers, and the attention of the profession was called to them either in a catalogue or through *The Dental Cosmos*.

With regard to the spreading of gold, some of the speakers have said that all metals will spread under a blow. The more malleable the metal, the more it spreads and less force is required, because there is less resistance. Gold is a malleable metal, therefore it spreads much more than all other metals.

I believe with Dr. Johnson that we cannot put the spreading property of gold to so great an advantage in the filling of cavities in teeth. We cannot hammer a tooth as a person would hammer a piece of lead. Our patients will not stand it. We cannot apply the same force on the cavity of a tooth; if we want to apply force in packing gold, we have got to have the cavity in a solid condition first. After that the gold begins to spread. The gold must be in a solid mass.

With reference to gold spreading, supposing we make a perfectly parallel-sided cavity, if it is a little bit rough we take a solid piece of gold and it just goes in; you take a perfectly straight plugger and with slight tapping it will wedge it there so that you cannot remove it. It has been my method for a number of years past in the way of filling crown cavities to take a perfectly straight plugger, or I have taken fissure burs and ground off the end, and then made the shape of it. A great many of these cavities I make as straight as I can, and wherever it is convenient to do so I use a plugger as large as I can without touching the walls.

Dr. A. W. HARLAN: One of the things that I admire about Dr. Royce is the fact that he is filled with enthusiasm. He has only been among us a few years and his previous achievements before this society show that he is an earnest man. He has presented at different times to the society methods of practice that have been worthy of being taken up by any of us. His essay on crown and bridge work was conservative and timely. His presentation of the adaptation of gold to amalgam for certain specified cases was the best of its kind that has ever been printed, and certainly Chicago deserves the credit for that through Dr. Royce.

With reference to the matter that he brings before us to-night, the philosophy of the impaction and spreading of gold has been demonstrated on strictly mechanical principles that are capable of being verified. In the beating of gold it is taken, after being rolled into sheets and cut into small squares, and placed between the skins in the center of the book, then it is enveloped from side to side sufficiently well, so that the gold-beater with his hammer also based on mechanical principles, by pounding it causes it to spread, and that is the theory, because if it were not, gold-beating would be done in an entirely different manner; therefore the philosophy of the matter of impact is correct. The philosophy of the spreading of gold is correct. Now, what is the object of presenting a set of pluggers to this society, based on these correct mechanical principles, unless it be to help us in the impact of gold in teeth? In directing the pluggers against the gold, one of the essential conditions in the beginning is, first, that the base of the filling must be fixed. If it is fixed, then the spreading property of the gold is utilized by such a plugger and the walls of the cavity have the gold adapted to them. If all the previous reasoning has been correct, in the introduction of gold, the statement that Dr. Crouse made is also correct, and the surface of the filling should not be higher at the sides if you have parallel walls, but should be a little elevated in order to get the mechanical impact that every metal worker in the world has utilized for centuries. This question, gentlemen, has been discussed over and over again before dental societies and in philosophical societies, and I am astonished somewhat that some of the members of the society are not conversant with the experiments made with metals, and have not utilized their familiarity with these experiments in the filling of teeth. It does not make any difference, if a man succeeds otherwise he does it at the expense of a greater amount of labor, and where you save labor is by having the center of your filling a little bit higher than it is at the walls of the cavity, because it is only in that way that you will get the benefit of the spreading of such a ductile metal as gold.

In 1873, or a little later, in the *Dental Cosmos*, were a series of illustrations of this matter of the construction of fillings on mechanical principles by Dr. Hunter, of North Carolina. This discussion was really a controversy between the late Dr. M. S. Dean, of Chicago and Dr. Hunter. Dr. Hunter contended at that time that the gold should be a little higher at the sides instead of the center. Dr. Dean conclusively, at the same time, demonstrated by diagrams, drawings and actual specimens, that the theory of keeping gold higher in the center was correct, and in accordance wlth the mechanical principle spoken of by Dr. Gallie, which is being utilized by metal workers. From that day to this I had supposed that the question, so far as the filling of teeth was concerned, had been settled. I realize, Mr. President and gentlemen, that there are times perhaps when it is absolutely necessary to fill a cavity by impacting gold against the wall, but there must be but one or two walls. If you have two or three parallel walls you will not get perfect adaptation with the same amount of labor, unless the filling is a little higher in the center.

Dr. Royce (closing the discussion): I hardly expected the discussion would take the course it has. I have never been able to tuck cohesive gold down into a V-shaped space. It will not go there for me. I do not claim to be the inventor of oval-faced pluggers. I have used them ever since I have been in practice, but I never saw an oval-faced point that could be used in the cavity with any satisfaction, until I made one that was bell-shaped, with rounded corners and serrated sides. I have been working on these points for ten years, studying the literature and recent standard works, and Dr. A. J. Harris has loaned me from his library some of the early books on dentistry, but nowhere have I found anything about the mechanical principles governing the spreading of cohesive gold under the plugger point.

There is one thing in regard to square pointed pluggers which is not appreciated by the profession at large. I have found great difficulty in making a good surface with a square pointed plugger. If you have a plugger like that (exhibiting), see what a dent you make in the gold. Try to fill that dent wtth cohesive gold, and what do you get? You leave an air space. For that reason, if no other, I discard flat points.

Dr. Wassall presented a large specimen of salivary calculus, from the practice of Dr. Peach, of Australia, and Dr. Booth exhibited an appliance for trimming roots, revolved in the engine handpiece.

SOUTHERN ILLINOIS DENTAL SOCIETY.

This society held its annual meeting at Edwardsville, November 7 and 8. A practical programme was presented and carried out almost to the letter. The attendance was good, owing to the fact that so many attractions have been open to the public during the year. Three new members were added to the roll. The society seems to have a brighter prospect before it than ever before. Our profession in this part of the State has not in the past been the most active; but the time has come when the practicing dentist cannot afford to remain away from some of the society meetings, it must be either local or state. If he does remain away from all meetings, he must of necessity be behind the times.

Papers were read by the following gentlemen:

"Logan Crowns," John G. Harper, St. Louis.

"My Medicine Case," C. B. Rohland, Alton.

"Fracture of Superior Maxillæ," W. C. Kalbfleisch, Collinsville.

''Antrum of Highmore," George C. Schwartz, Edwardsville.

"Anæsthetics, Local and General," G. A. McMillen, Alton.

"Fifth Pair Nerves," L. B. Torrence, Chester.

These papers were all very interestiug, and were subjects of general discussion.

The clinics were of especial interest, and the clinicians were all equal to the cases presented.

Clinic No. 1 was the resetting of a Bonwill crown which was set twenty years ago. The interesting part of this was the time of service of the crown. The root was in good state of preservation and looks good for another twenty years. The crown was also in good shape. Close articulation was cause of loosening. Patient was Dr. T. W. Pritchett, of Whitehall; Dr. Rohland, operator.

Clinic No. 2. Dr. Prosser, St. Louis. Soft gold filling, finishing with No. 60 cohesive. The work was beautiful when finished.

Clinic No. 3. Making and setting gold crown. Operator, Dr. McMillen, Alton. Work was well done, and with rapidity.

Clinic No. 4. Contour Gold Filling. Operator, Dr. J. G. Pfaff, St. Louis: Cohesive gold was used, nearly altogether and condensed with Harris' engine mallet. The doctor made a beautiful filling, but work of mallet was rather slow, the work was certainly good when finished.

Clinic No. 5. Dr. Canine, East St. Louis, operator: Immediate root filling, and making and mounting gold crown. Clinic a success in all the particulars.

Clinic No. 6. Dr. C. C. Corbett, Edwardsville. Showed case of regulating in which the Jackson crib was used and was being attended with success. This method seems practical but slow in action. The doctor expects the patient to wear the crib a year.

Clinic No. 7. Dr. Daman, Mount Vernon, operator: Treatment of alveolar abscess. Using Dunn syringe peroxide of hydrogen and carbolic acid was injected through fistula; root filled at same sitting with gutta-percha, cones and chloropercha.

Clinic No. 8. Dr. Pritchett, Whitehall; operator: Demonstrated the step anchorage in preparation of cavity for protection of filling in occlusion. The doctor certainly has the right idea and this one clinic was worth much to many of us.

Clinic No. 9. Dr. G. W. Entsminger, Carbondale; operator. Demonstrated the use of chloroform for obtunding sensitive dentine. The operation was performed with only partial success in the use of chloroform, but the patient was well pleased even with the relief she received by its use; saying it was the best and easiest operation she had ever had; tooth was filled with cement.

Clinic No. 10. Dr. G. W. Entsminger, operator, Carbondale: Extraction of an infringed lower wisdom tooth, using Physick's forceps. Operation was attended with complete success. Same operator, also extracted badly decayed upper wisdom tooth useing same forceps. L. T. Phillips and C. B. Rohland, supervisors of clinic.

At the last session the clinics were discussed, and officers for ensuing year were elected as follows: President, L. B. Torrence, Chester; Vice President, B. B. Tatman, Mt. Vernon; Secretary, G. W. Entsminger, Carbondale; Treasurer, L. Betts, Duquoin.

Place of next meeting, Nashville.

L. B. Torrence, Secretary.

THE DENTAL REVIEW.

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ASSOCIATE EDITORS:

C. N. JOHNSON, L. D. S., D. D. S.   T. L. GILMER, M. D., D. D. S.

PROFESSIONAL ETIQUETTE.

There is one phase of professional etiquette and courtesy which we do not remember having seen discussed, but which seems to us of sufficient importance to merit a brief reference to it. This pertains to the courtesy due a dentist who calls on a brother practitioner at his office, and conversely to the consideration due the practitioner from the caller. Dentists are proverbially a busy class of men during office hours, and those in full practice do not naturally look kindly upon intrusions on their time and attention. But it should be an unwritten law consistent with a proper *esprit de corps* among the profession that when a dentist calls on his fellow he should be assured of a welcome the moment he steps into the office. He should receive more immediate attention, if possible, than if he were a patient coming in the ordinary way for services. The dentist upon whom he calls should, if busy at the time, make a greater effort to see him without delay than if he belonged to any other calling.

But just at this point comes in the caller's duty in the matter, and it is to this that we wish particularly to call attention. It is not necessary to offer suggestions to the man who conducts a full practice himself on a systematic order. If it ever becomes necessary for him to call on a fellow practitioner he knows in advance just how valuable time is, and he will not consume more of his friend's than is absolutely necessary. As a matter of fact men of this order do not make many professional calls—more's the pity.

But there are two classes of practitioners who often unwittingly drive the busy man perilously near the verge of self-destruction by their thoughtless intrusion. We refer to the young practitioner who calls to consult his older brother *during office hours* about various matters pertaining to his practice; and to the country dentist who comes to town and drops in on the city dentist for a leisurely chat between the hours of 10 A. M. and four P. M. We have a word for each of these, and we say what we do in all kindness, for we love them both.

We wish to assure the young man in advance that there is no practitioner worthy the name of a dentist who will not gladly give to the beginner the benefit of his judgment and experience. There is no other one thing connected with a professional life that imparts half the satisfaction to a practitioner than does the assurance of having helped a young and struggling dentist out of his difficulties. A young man pays a compliment when he asks advice, and that compliment is usually appreciated. The only thing is to know how to approach the busy practitioner. Here is a method which we believe will be mutually beneficial and satisfactory. Go to the office and when the assistant answers the door send in your name with a request that the busy man remain at his work and kindly appoint a time when he can see you for five, ten, or fifteen minutes, as the case may require. You will always get that appointment, and it will be made at a time when nothing is likely to disturb the conference. Be promptly on hand at the appointed time, state your case directly to the point, and when you have received the busy man's advice, thank him for it and——go. If he has any leisure time he will be glad to urge you to remain for a little social chat because he likes to chat with young men, but too often he has no time and you will win golden opinions from him by showing him that you appreciate this fact. You may come as often as you wish if you come in this way, and the busy man will always be glad to see you.

With reference to the relations between the city dentist and his out-of-town caller, we believe that there might be more congeniality if the different conditions existing in a country town and a large city were better understood. The country dentist cannot always be expected to appreciate the value of half a dozen minutes to the city dentist, nor does the latter always realize that his necessarily short and abrupt conversation when taken away from his work, may seem like a rebuff to his caller. Time is infinitely more valuable in a city on account of large expenses and large fees, and city men soon learn the worth of a minute. In a small town matters move more slowly, and a man may stop and gossip a trifle during his working hours without mortgaging his house and lot.

The city man is always glad—or ought to be—to see his friend from the country. Professional visiting is beneficial to both parties, if carried on in the proper manner. But the country practitioner should always take into consideration the necessities of the case, and should not expect to gain a conference with the city man during office hours without an appointment. We personally have a friend in the country whose method of procedure is so nearly perfect in this regard that we cannot do better than to suggest it to others. We never know of his anticipated arrival in town till we get his name from our assistant, with a request to know at what hour we purpose lunching. We do not have to leave the operating chair, because he has insisted that we shall not be disturbed. Promptly at lunch hour he is on hand, and we are sincerely and honestly glad to see him. Daily during his entire stay in the city he either lunches with us or we with him, but he has never yet been known to take us away from our work for one moment. That man is a jewel. He is one of the salt of the earth. We look forward to his visits to Chicago with the greatest pleasure. He is more welcome in our office than the best paying patient we have. We honestly believe he will go straight to heaven when he dies, without any other recommendation than this.

But to prove that we have not raised the question without reason, we must cite an actual occurrence to the opposite. The name of a country dentist was sent to the operating room recently, and we left a patient in the chair to offer him welcome. He introduced himself familiarly, with the remark that he had often heard of us, etc.,—same old story. We politely tried to get at the nature of his business with us, but were unable. He had "just dropped in." We remembered our patient in the chair, and moved toward the operating room as a gentle hint. When we thought we had him dismissed, and had turned and gone back to the chair, we were dumbfounded to find him at our elbow, and before we could divine his purpose he was looking into the patient's mouth "to see how we did it." ! ! !

And yet the rank and file of the profession wonder at the inaccessibility of some city dentists ! C. N. J.

CHICAGO DENTAL SOCIETY.

The monthly meetings of the Chicago Dental Society are now held at 10 East Van Buren Street, near the Lake. For this reason we presume they are not so largely attended as formerly, especially by the veterans.

The attention of the executive committee is respectfully called to this matter with the hope that a new location will be selected for the meetings which will be more central for all the members. The transactions of the society should be participated in by every interested member, and on this account we hope a change will be made in the place of meeting. There is no reason why the papers and speeches of the Chicago Dental Society should not be of the highest order. Some of the best talent in the world is stored up in Chicago and we hope soon to chronicle the unloosening of the tongues of some of our profoundest speakers and thinkers. The meetings are fairly well attended now, but not so fully as they should be. Give this immediate attention, members of the Executive Committee. At the same time make preparations for the anniversary dinner.

HAPPY NEW YEAR.

This old-time expression has more force for the coming year than it has had many times in the past, for us, especially. There will not be so much hard work for Dr. A. O. Hunt and yours truly—we are nearly out of the woods—but we are sighing for new game, not new responsibilities. The commercial crisis in Australia and the United States will be over shortly after the new year, we hope and expect. Then dentists will be able to collect their bills, pay their debts, go to society meetings, subscribe for journals, pay for them, buy books and read them after the worry of daily practice is over, and still have enough money left to go to the seashore in the summer and to California or Florida in the winter. Take new courage for the new year, brace up and work and economize, and stop some of your bad habits. Write a paper for the Dental Review and we will pay for it by weight, by the yard or any way you choose—not a great deal at first, but little by little we expect to pay for all good, original matter. Give us news items and obituaries, new discoveries, interesting cases and anomalies, and help make the history of 1894 memorable by doing some good in the world. Throw off selfishness and think there is some one else besides yourself still alive and in possession of faculties.

The Antrum.

Every new case of engorgement of the antrum presents some new features. Nearly all require to be opened so that there may be free exit for accumulations. When carious or necrosed bone is present and there is no immediate necessity for surgical removal of it, the complete saturation of it with a two or three per cent solution of sulphuric acid in cinnamon water, is all that is needed to separate the dead from the living bone. I generally begin the irrigation of an antrum with salt water one to twenty, at 100° F. After two or three days, according to indications, dilute zinc sulphate, one-half to two per cent in water, alternating with boroglycerine, three to five per cent, in water, always tepid, sometimes following with the latter, after the use of the astringent. Do not irritate by using too much force in irrigating the antrum. Avoid too concentrated solutions; better use more of the solution than to cause smarting, burning, or excoriation. Wash the antrum daily at first, at the same hour of the day, if possible. When a tube is used, do not let it get foul. The dry treatment of the antrum is good when you are sure it is *clean*—not otherwise. A dentist will generally get better results from the "wet" than the "dry" treatment. When you are ready to pronounce the case cured, use soft water as the irrigant in making the final examinations. Have irrigation at first every other day; then once in three days; then in a week; then in two weeks, the last two washings being with salt water, or one-half per cent boroglycerine water. In obstinate cases I have had good results, at times, with one-half per cent solution phosphoric acid in water, as a stimulant and astringent, or even with nitrate of silver water, one-half of one per cent. Pyrozone—yes, certainly—cleanser only; not as an irrigator for the antrum. Clean the tubes with it—the syringe—anything; but inject it? No!

DOMESTIC CORRESPONDENCE.

LETTER FROM NEW YORK.

To the Editor of the Dental Review:

DEAR SIR—Thanksgiving is in the air. Who has not far more to be thankful for than to grumble at? But the world goes on grumbling. There is innate in the human that no one wants that which is in the grasp, but that which is unattainable. The boss politician in New York tried this and the dead weight of his unholy ambitions made the avalanche, that has swept him and all his minions into the sea of oblivion. Did these experiences cure this disordered condition of humanity there would be amelioration and hope again. As history has proved over and over, foolhardy ones have pushed on again and again into the arena. Human nature has not of itself, abiding wisdom; it can reform, but never can redeem, its Paradise Lost. Nevertheless, some will persist in saying that a disease can be cured —"sometimes"— as we heard at the November meeting of the Odontos, "a double-minded man is unstable in all his ways." Men who switch from one position to another are not to be relied upon when subjects requiring real scientific knowledge are before us for our dealing. Prof. Pierce gave a paper that was a real relish to those of sound mental digestion, viz., "The Etiology of Pyorrhœa Alveolaris." Whether his claims will be substantiated will be determined further on; "but partial culture," said, "that's so." And more, "we always thought so." Not a word of proof for such a statement. If it proves that uric acid is the exciting cause for calcic pericementitis, Prof. Pierce's term previously used, it will be time to carry such information to the public as was suggested; but Prof. Pierce wisely advised that it would be better to wait and have a larger number of cases to draw conclusions from. From the fact that there are so many phases manifested, things do not conclude. The cases that do not have any calcic deposits at all hardly come into the uric acid analysis. The paper will be of more than ordinary interest, but it fell far short of an able discussion. The author of the paper presented at the October meeting did not add to the profoundness of his learning by using necrotic and necrosed for descriptive terms, and both in the same sentence, proving that he was not schooled in the field he had undertaken to cultivate. He presented specimens taken from the cadaver to prove that the borders of the alveolus were not "necrotic or necrosed." Oh? it was so lame. One statement was made that was very true, that more teeth were lost by this disorder than from any other cause. We have iterated and reiterated this same statement. There is one other fact, ruthless extraction, which prevails to a fearful extent, slaughtering the innocent. This by graduates as well as by nongraduates. Our impression is more and more perfected regarding the superficial character of the proceedings of many societies, measured by a scientific standard, and it is coming to be lamentable. There are some events that come per force into all our convenings, and they are not to be ignored, plain and unvarnished incidents of practice, these plainly stated, are the stepping stones of helpfulness; and the social amenities ditto. We think the demand of the hour has a call for knowledge; something that can be made real in practice. Never was this more painfully evident than in our late meetings in this vicinity with *rare* exceptions. At no time has there been so much attention (in talk) to painlessness in our practice. How much knowledge has been produced? Most of the energy has been expended in opposition to the efforts of one or another to bring to the notice of the profession something they have found to be of benefit. We saw equally manifested by italic opposition the same spirit in our late congress, trying to belittle and defame a fair and out and out statement of one of Chicago's honored practitioners of how he was treating sensitive dentine and other tissues.

Physicians are saying some things in their journals which would be profitable reading for us. In the October number, the 21st, of the New York *Medical Record*, viz., "Gentle Touch," and November 11th, "The Limits and Requirements of Gynæcology," we think a careful reader will gather some good suggestions, and with a better understanding of the hackneyed term "conservatism." To one who is always fault-finding, the term means much. We quote his last sentence: "The higher the aim the greater the attainment." It is the low aim in life that keeps many from high attainment. More are after the Hip! Hip! Since the November elections the air has been rent with Hip! Hip! A cold wave for boss politics. Nothing left for the flies to light on. The First District comes in this month with a Hip! Hip! Over 300 at a clinic; and a good one—never better—but it was not in the Academy of Medicine. The rooms there were only large enough for "quality."

When it comes to association, give us "quality;" when it comes to a lunch, let us have both "quality" and quantity. That was what the 300 meant at the clinic (at White's up-town depot. See programme). In the evening it was Hip! Hip! Rooms full to overflowing. We could hardly get in without an usher. About 300. What for? To be hyp-noted by Fillebrown with the "Philosophy of Repose." The Doctor has got it, and, what is more, believes in it, and gets $10 an hour for it, viz., and that he may be sure of the patient, that the "suggestion"—sticks, he (locks) it up so that no other fellow (dentist) can use it. Not bad. But there's pa(in it) all the same. The only two men who saw "into" it were O. E. Hill and Watkins. Hill has been full of suggestions for years, but Watkins: he is a later edition. He took a high kicker (we think his head-rest did it), and made an angel out of her with one "suggestion." We are going to have a run on this "Philosophy of Repose." It will never go in New York. It will do better over the green hills—far away. A New Yorker says, Who do you take me to be?

The $75 lunch needed no suggestion; it was both quality and quantity. The chairman of the clinic committee told us he thought they could have another ground swell like this about once in three months. Well, there is an inspiration in them. Every one gets to know his neighbor.

Drs. Norman, Kingsley and Bogue have arrived by the same steamer. Dr. Younger's family arrived this week.

Rumor has it that the "Academy of Science" is to be revived; an organization formed in '74. This body at that time published a journal. It may again; a semimonthly; possibly a weekly, patterning somewhat after the New York *Medical Record*, which is a flattering success under the management of Dr. Shrady. In this journal is shown great liberality as compared with the gilt-edged journal, the New York *Medical Journal*. We notice the *Record* adds the address of the writer—name, place, street, number. This reminds us, what is the place, street and number of the *Dental Tribune?* Good children ought not to die young. Courage of one's convictions always comes high, especially if there is anything of value behind them. If hypnotism is made up of suggestion, possibly the editor and proprietor took one of Fillebrown at the congress, and saw more in the "Philosophy of Repose" than he did in the pa-in which did not equal the pa-out, and the loss of grey matter; for it must have been immense—the latter. Billy Patterson, you missed it when you tried to mix our talent into the syndicate. We don't think that sheet ever got one square meal, to say nothing of high living. If it is dead, we judge it died of inanition or draft. We did pat it on the back a little, for it seemed at one time to have wind.

A new remedy has appeared, the invention of a dentist—"The Catnip Cold Cure." If this infantile effort is not too cold, it might be cured. It only costs twenty-five cents a bottle. Just put a little in the nostril and relief comes sure in three minutes. Stimulation of the mucous membrane is what does it. Dr. J. Leon Williams has attained marked social attention from Queen Victoria. She has given him a letter of acknowledgement for the volume of his "Home and Haunts of Shakespeare," published by the Appletons, of New York. It is a novelty of unique taste. The doctor has devoted his leisure hours since he went to London some three years ago to this work. He has lived among the peasantry of Stratford-on-Avon, and familiarized himself as far as possible with all known scenes and rambles of the renowned poet, and with his camera he has recorded them in this beautiful cornucopia of gems. Each one of the scenes has a line of Shakespeare's relative to the scene. Most favorable notices have been given both in the United States and England. Dr. Williams is a brilliant conversationalist and has won his way into the drawing rooms of Mrs. Burdett-Coutts, Browning and others. Considering that so few dentists gain much real social distinction, he may well be congratulated. Dr. Williams combines happily more of the marked capabilities than fall to the lot of most men. He is an able writer; we think we have none in our ranks who excels him. We have none that excel him as a scientific investigator with the microscope; and his finger-craft is of the highest order. His article on "The Beginnings of Physical Life," published in the *Cosmos* in '81, attracted noticeable attention. Dr. Carl Heitzman, the eminent microscopist, of New York, characterized his slides as the finest he had ever seen. We think Dr. Williams preëminently fitted for a first-class editor of a first-class journal comprising paid talent. In our estimation nothing would tend to elevate our profession in the estimation of other scientific callings, as a journal of such a rank. Dr. Harlan has expressed himself as in favor of such an enterprise. We are not isolated in our thought concerning the need of a high order quarterly. Not a few are thinking that we are able to sift the tares from the wheat. Some of the able papers that are contibuted to our bodies, are weighted down by puerile discussion. We have been much impressed on this line. It is much in the thought, although not freely expressed as yet, that the preference is growing to have papers go directly to our journals without running the risk of being belittled by discussion. We note the sound of a going in the mulberry tops.

We notice that one gentleman has a decided tendency to say—something—when he takes part in a discussion. This was noticeable in the discussion on Prof. Pierce's paper. He stated that Dr. Michels across the sea has found by experience that while heating water, deposits of lime collect most nearest the point of intensest heat. This he thought applied in this matter of deposits collecting most in closest contact with the greatest imflammation. This nut has a good deal of meat in it. Dr. Bogue passed it around for those who have the ability to meet it. There is another thought in connection with this "pocket disease" and the deposits both of a calcic character and the débris associated in combination with atmosphere, air and its combinations; we are on record with this thought in connection with the inflammation of tooth structure (or caries). This is in one of the late issues of the Missouri *Dental Journal*. We call attention to the closing of Dr. Truman's article in the REVIEW. The entire article is timely, but note, "business is business," yes, but it is so unrighteously pursued, and no human government will ever change it for the better. Dr. Morgan Howe said truly in one of the late meetings of the Odontological Society, "I suspect that the commercial spirit is too largely taking possession of the coming portion of dentists. Too many are considering the short cut method, and quicker sales and more immediate dividends, and so they are scouting at real scientific practice and are rushing forward with unprepared theories," something that can be presented to the easily beguiled public as a substitute, and this by men who boast that "no one comes into my office without leaving a fee." They are "joined to their idols; let them alone."

There is a class of people in our large cities who do not have any squeamishness in getting into a dentist for any amount, and then leave them comfortless for pay. This can hardly be avoided in some instances. Here is a case which may illustrate many:

A Fifth Avenue milliner, in good array, goes and makes a bill of $430 with a good operator in New York. We were called as a witness. The fee of $5.00 per hour was charged. The service was better worth $10.00 than most service performed. The court gave the full amount of the bill, interest and attorney's fee. This was not tardy justice. We think it safe only to let a bill run to a large amount when the parties are known to be responsible and honorable. Dr. Atkinson tried to establish a status in the courts for dentists, but he did this at bitter cost. Rarely, if in any case, did he get justice. We are knowing to cases where persons have been sent to practitioners in New York by outsiders, and these persons were told that they were not receiving any "new patients," and this was the secret—they asked: "Doctor, how much do you charge for filling teeth?" Such patients were not desired, for they had practice enough without the questioners. We know of a Yankee dentist writing to a New York dentist asking if he knew a first-class practitioner to whom they could send a patient and who would "fill teeth for two dollars?" The party wrote back, "Don't know any." If we think it strange that the public ask such meaningless questions, what can we say when dentists do the same? We say meaningless questions; yes, truly. Why do not these same people go to a house builder and ask him: "How much do you charge to build a house?" A great deal has been written concerning our nomenclature, and nothing more to the point than the report before the dental congress. But just look right in the face of this and see the proceedings—professors using such meaningless and illiterate terms as "dead teeth," "I done a job." There has got to come a weeding out of these unscientific blotches.

Dr. de Silver takes the late Dr. Charles Kingsley's practice, he having been associated with him for the last five years. Dr. de Silver is a graduate of the New York College of Dentistry.

Quid Nunc.

REVIEWS AND ABSTRACTS.

As Others See Us.

Yet Another Professional Holiday. The World's Columbian Dental Congress. By Dr. George Cunningham, Cambridge, England.

"Won't you give us your impressions in yet another Professional Holiday article for the *Dental Record?*" said a representative of "the" company when I stood on the bridge at Waterloo station, as on a coign of vantage, vainly trying to catch sight of a face from Manchester, and another from Vienna, amid the seething crowd attendant upon the departure of the Eagle express. A hurried, if not a rash, consent compels me now to a labor of love in many senses, and yet withal a task of no little delicacy.

It is well at times to forget the existence of cynical critics and carping cavillers, and to give honest expression to thoughts, experiences, and convictions, even though self-comfort prompt an apathetic silence as the wiser plan.

"Suppose a neighbor should desire
To light a candle at your fire,
Would it deprive your flame of light
Because another profits by't?"

So, more than neighbor, sympathetic reader—these lines are only penned for such—"I will a round unvarnish'd tale deliver," and "Mark, now, how plain a tale shall put 'some' down," in the hope that others may profit by it.

"Ah! here you are at last," and soon our little party was speeding on its way to Southampton, where the train ran right alongside the steamship New York (10,500 tons). In a little over half an hour we had settled down with all our traps and belongings in our floating residential club, without missing in the least the delights of an extra cab journey across Liverpool, and the sardine-packed tender from the landing stage.

Some idea of the magnitude of this Atlantic greyhound was gathered from the positively microscopic dimensions of the smart little cutter Alektor, on which the angel of our last professional holiday had come to give us a "send-off," as we steamed down Southampton water.

The passenger list is, of course, the most important publication of the day. We run it over, and are pleased to see quite a dozen names we know from France, Switzerland, and Greece.

Thanks to the social aspect of our scientific and political organizations, and especially to such international gatherings, such as that we were about to attend, there has been created for us dentists a kind of freemasonry, informal, it may be, but none the less of the highest order, since the sole passport is a certain standard of professional ethics, which admits to the company of and fellowship with a goodly number of persons of no uncommon interest, with whom every earnest dentist can find endless topics of conversation, and with whom conversing we oft forget all time. A high regard for such a standard, implying, as it does, a readiness to sink the individual interest in the professional weal, demands discrimination in the exercise of this fellowship.

Happily for us, no such discrimination was required. So we sought out one another, and soon old friends gladly hailed old familiar faces, and quickly made old friends of the new.

As days go by, the passengers, who came on board as units or as pairs, gradually evoluted into larger and larger groups, but the dental section was days ahead of them all, and soon led the ship in sports and all the various pastimes which serve to make a pleasant holiday of our ocean trip, as

"She walks the waters like a thing of life,
And seems to dare the elements to strife."

Only one day did the elements "catch on" to any extent. Our own immediate "trio" kept their feet and their full allowance of victuals, but some of the dental section paid rough Neptune's tribute like ordinary mortals. "Coming down to lunch?" "Well, n-n-no, I don't think I shall." "Sick?" "No, but I must have taken something before coming on board that did'nt quite agree with me."

"Seasickness does make liars of us all ;
And thus the native line of resolution
Is sicklied o'er with the pale cast of thought."

Anyhow we all had a good time ; indeed, so good and so busy a time, that some of those papers for the congress which were to get touched up or finished on the voyage, got scarce a thought. In a week the steps, which lately pressed the Strand, dallied in Broadway.

One incident of dental interest occurred. One morning our steward, one of the best of stewards, appeared at table with pale face a badly swollen cheek. "What's the matter, steward?" "Neuralgia." Umph! At lunch he was conspicuous by his absence. On hunting him up in his quarters aft, he was found in such agony that, in opening his mouth for examination he nearly fainted. The removal of two broken down and carious roots would have given him almost instant relief. Professional etiquette limited our duty to calling the medical officer's attention to the case, with the result that a pill was administered, and the man on the sick list for an unnecessary length of time. On our return trip, we renewed our acquaintance with this steward, and found him happier and in better health, than he had been for years, from having followed, when he got on shore, the good dental advice he had given him. One was anxious to know if it was the absence of a proper dental equipment or the lack of any knowledge of common dental troubles which prolonged this man's agony unduly, but the haughtiness of the medical despot, most unusual among ship's doctors, effectually precluded any information.

By the way, the usual charity concert was more than a success, thanks mainly to the two prolonged "turns" of the inimitable Bessie Bonehill. In simple evening costume, without stage dresses or effects, the true *artiste* shone out the more in her power to interest so unusual an audience. Despite that and the other professional talent of her company, both in recitation and in song Dr. Rathbone and Dr. Paterson, whose two tenor solos were rapturously encored, upheld the prestige of our profession's repute in such entertainments.

After three sweltering days in New York, we set off for Buffalo, where we were met, fed and bedded by our old friend Barrett of the misconducted party repute, Exeter B. D. A. meeting. A fear of shocking his well-known modesty, and his possible retaliation in the *Dental Practitioner*, prevents me dwelling on the incidents of our day at Niagara, that dinner (?) at the Prospect House, and the state room party on the sleeping car to Chicago.

Not his fault the loss of our kodak in the rapids near the Three Sisters, nor yet the heroic recovery of the same; not his, the loss of our Manchester fairy, nor yet his mysterious reappearance at Niagara Falls Station; not his, the heat and dust of that long night railroad ride; nor yet altogether his, the happy mistake through which I missed my direction to descend at the first suburban station of Chicago. A happy mistake, for it brought on board the train the welcome presence of the Secretary-General Harlan, who promptly *fixed* us all up in the best of style.

Our first visit was to the Columbian Dental Club, where we were warmly received by President Shepard, Secretary Hunt, and several members of the Executive Committee, and invested with the badge of membership—a neat, gilt button of unobtrusive design, and a special badge of foreign membership—a fearful work of art, a harmony in gilt clasps, gold fringe and blue ribbon, much affected by Ancient Order of Buffaloes, Oddfellows and the like.

This was the happy inspiration of the Congress Auxiliary Executive, so that the foreign visitors should be quite *en evidence* and not be overlooked in the crowd. The distinctive badge was certainly a good idea, but a silvered instead of a gilt button would have achieved that end, and made us less uncomfortably conscious of our being somewhat conspicious. Though these were our feelings, it must be admitted that the badge seemed much in favor and highly regarded by, what I may be excused calling, the really foreign members. I mean those whose native tongue is not English.

Our formal yet heartily cordial reception at an end, we were hurried off and made members of the Chicago Athletic Club, a palace of luxury, in close vicinity to the Art Palace where the congress was held. After an enjoyable plunge in the loveliest marble bath imaginable, inspecting the gynasium, tennis courts, etc., and an appetizing cocktail, need I say "Manhattan" of ilk, we were elevated away up in the air, goodness knows how many feet high, to a lovely dining-room with rich carved oak wainscoting, overlooking the magnificent inland sea, almost misnamed the lake, entertained at an informal dinner by the President, the Secretaries, executive and general, and the veteran of the Cross of St. Louis. All voted Mac's salad a poem, equal to his toasts. After exchange of personal news and inquiries after old friends, when the stimulus of good cheer made bolder, over the coffee and cigars, the conversation then, as on most other occasions, turned on either the so-called "action of the dental profession of England toward the congress," or the withdrawal of all recognition of American degrees, or more usually both. So *right here*, it may be as well to put forward the results of an honest effort to explain "the defection of our English brethren, upon whom we had the greatest claims, and whose support the officers had the best right to anticipate." (Editorial, *The Dental Practitioner.*)

The attitude of the British dental organizations has given rise to so much comment on both sides of the Atlantic that any information tending to remove unfortunate misconceptions, or to explain apparent national antagonism to the Dental Congress, will be welcome to many. The bulk of British dentists have never had an opportunity of understanding the situation, while many of those who voted on the question did so in the midst of what seemed inexplicable confusion. A brief historic retrospect of the movement will best explain the nature of the situation.

Although the germ idea of such a congress originated in the American Dental Association as far back as 1885, the first public announcement of the intention was made in Paris at the First International Dental Congress when, in view of the probability of the World's Columbian Exposition being held at Chicago in 1892, official invitations were made on behalf of the municipality, the organizing committee for holding the exposition at Chicago, and four out of the five then existing dental societies of Chicago.

Subsequently it was decided to hold the exposition at Chicago in 1893 instead of 1892, a fact sufficient in itself to refute the imputation of any desire to hold an independent dental congress in opposition to a dental section of an International Medical Congress. Thereupon the American Dental Association, and the Southern Dental Association, the two national dental bodies, appointed an organizing committee of fifteen members, which met in August, 1890, and authorized issue of a circular, stating the general objects of the congress.

This circular was published in all the American journals and sent to every foreign dental journal in December, 1890, or January, 1891, and with the exception of the prospectus and the printed invitations, one to the dentists of America and another to the dentists of foreign countries, issued in March, 1893, no other official circular was issued or authorized by the general executive committee.

It is almost needless to state that none of these communications contain a single phrase which could possibly excite even the most hypersensitive national susceptibility.

In October, 1891, that is nearly a year after the publication of the first circular, an organization under State control and with State support, entirely independent of dentistry or the dental congress, known as the World's Congress Auxiliary, was created for the purpose of carrying out a series of literary, scientific, industrial and professional congresses, of which the dental congress was the hundred and twenty-first.

In January, 1892, the general executive committee after about eighteen months' existence accepted the invitation of the congress auxiliary to hold the dental congress under its patronage with suitable accommodation in the building.

Committees were also formed by the congress auxiliary for carrying out several medical congresses. The regular medical congress was abandoned owing to the International Medical Congress at Rome, and the Pan-American Medical Congress at Washington. A proposal to hold the dental congress in connection with either the homœpathic or the eclectic medical congress was very rightly rejected, while no objection was offered to the dental congress being grouped with the pharmaceutical, chemical, electrical and philosophical congresses. In pursuance of its function the World's Congress Auxiliary, at that time ignorant of the existence of the general executive committee already formed, appointed a committee for the purpose of organizing a dental congress, which only met once when it was decided to merge their interests and efforts with the organization appointed by the representative association.

The women's branch of the congress auxiliary also appointed a similar committee of women dentists. The auxiliary executive in the name of these two committees issued two circulars in almost identical terms, and similar to those relating to other congresses. This circular was never submitted to or approved by the general executive committee of the World's Columbian Dental Congress, nor even by its own committee of organization previously referred to. Certain passages in this circular caused, and rightly caused, the outburst of feeling in England, which led to the rescinding of the resolution already passed appointing delegates from the Odontological Society of Great Britain. The invitation to send delegates eminated solely from the congress auxiliary, and was forwarded through the State channel of communication, viz., the Royal Society of Arts. Indeed, the general executive committee first learned of the existence of this circular and the invitation to send delegates from private letters from some of those who had been selected as honorary officers for Great Britain.

It was not surprising that under such circumstances and the near approach of the congress the exact nature of the situation was never fully comprehended on either side. Anticipating similar action on the part of the British Dental Association, an official letter of explanation was hurriedly prepared for its last annual general meeting, and addressed to the President. Unfortunately this letter, arriving in the midst of all the turmoil of preparation for a busy meeting by an overworked executive, owing to the illness of the Honorary Secretary, was mislaid, and was only forthcoming at the last moment when the proceedings were about to be closed.

Late on the previous night a meeting was held of all those members of the British Dental Association present who had been appointed as honorary officers or to committees, and included Messrs. Macleod, Mummery, Woodruff, Coffin, Baker, Harding, Spokes, and Cunningham. After considering the objectionable circular and the letter to the President of the Odontological Society, explaining that that circular did not emanate from the General Executive Committee, it was unanimously decided that, as the matter had not officially come before the British Dental Association, it would be sufficient to propose that a delegation of five or six members, including the President, be appointed to represent the association at the congress. Next morning a private letter was received, announcing the despatch of the official letter to the President of the British Dental Association, hence the question which resulted in the discovery of the missing document.

The proposal of the previous night's meeting was formally made and lost by an overwhelming majority, while a large number abstained from voting, simply from their inability to sum up the situation, and their impatience to close an unduly protracted meeting. Under such circumstances, had confidence been placed in the carefully considered resolution of those members who made it, the fair name of our national association would not have been besmirched by the refusal to accept the denial of an honorable body of men as to the authenticity of that circular, and by so inhospitable rejoinder to the magnificent proposal made at Manchester, to hold the annual meeting of the association in Chicago.

It was useless to disclaim any intention of interfering with the attendance of individuals by the refusal to send delegates. It did interfere most seriously with the number attending from Great Britain, and not improbably with that, though less materially, from other countries, and even the United States.

It is indeed a pity that owing to the very complicated organization of the congress, and the separate action of its different organizing bodies, a confusion should have arisen which deprived many from participating in the benefits of assisting at what was one of the most important, one of the most instructive, and one of the best conducted events in the history of our common profession. —*The Dental Record.*

(TO BE CONTINUED.)

"THE STUDENTS QUIZ SERIES." CHEMISTRY AND PHYSICS. By Joseph Struthers, Ph. B., D. W. Ward, Ph. B. and C. H. Willworth, M. S. New York: Lea Brothers & Co., Philadelphia, 1893. Price $1.

An excellent aid to a teacher or student, may be carried in the pocket, and is quite up to the latest demonstrated research—a decided merit in any work.

MINOR SURGERY AND BANDAGING. By Henry R. Wharton, M. D. Second edition; 416 illustrations. Pp. 529. Price, cloth, $3. Publishers: Lea Brothers & Co. Philadelphia.

This new and improved edition is really a treatise on aseptic and antiseptic surgery and includes intubation, tracheotomy ligation of arteries, treatment of fractures and dislocations. The subject matter is excellently handled, without being pedantic or tedious and we can recommend it to a practicing dentist as the most recent work on the subject which will interest him. The method of sterilization of instruments is worth the price of the book if it were not for its added value in bandaging. The author is to be congratulated for his excellent illustrations in this regard. Dentists will do well to study carefully such works, as by their aid many emergencies can be met until the surgeon arrives.

PAMPHLETS RECEIVED.

THE ORIGIN AND EVOLUTION OF THE HUMAN FACE, and THE DESCENT OF FACIAL EXPRESSION, by Alton H. Thompson, D. D. S.

NINTH ANNUAL REPORT OF THE STATE BOARD OF DENTAL EXAMINERS made to the Governor of Wisconsin, in pursuance of law, September 30, 1893. Also the Official Register of Dentists holding certificates from this Board for the year ending September 30, 1893.

WISCONSIN STATE BOARD OF DENTAL EXAMINERS. 1893, 1894. Chas. C. Chittenden, D. D. S., President, Madison; B. G. Maercklein, D. D. S., M. D., Milwaukee; J. P. Carmichael, D. D. S., Milwaukee; George H. McCausey, Janesville; Edgar Palmer, D. D. S., Secretary, La Crosse.

PRACTICAL NOTES.

Logan Crowns.*

By John G. Harper, D. D. S., St. Louis, Mo.

My object in writing this paper is to give this society the benefit of some of the clinics given at the last meeting of the Missouri State Dental Association, and consists of a report of three clinics, giving the most simple first.

Dr. H. S. Lowry, Kansas City, demonstrated his method of setting a Logan crown with gutta-percha. The crown is adapted to the root of the tooth, then base-plate gutta-percha is wrapped around the pin and adapted to the crown, the pin and tooth being heated so that the gutta-percha sticks. The root canal is wet with water, to prevent the gutta-percha from sticking. The prepared crown, with gutta-percha in place, is heated in water and pressed to place, repeating the operation, trimming off excess until a perfect fit is secured; then all is made dry, the gutta-percha smeared with chloropercha, and the crown driven to position with a mallet. The doctor states that he has no trouble from these crowns coming off.

I have found it an advantage in making a close joint in the mouth, to place on the pin a disk of tin plate, then driving the tooth to place, the point of contact is indicated on the disk, and the crown can be ground accordingly.

Dr. J. D. Patterson, Kansas City, gave a clinic which is described in an editorial in the *Western Dental Journal*, July, 1893, which is reproduced here:

NEW METHOD OF ADJUSTING LOGAN CROWNS.

The desirability of the Logan crown as to strength and anatomical form is very generally recognized, and the following method obviates the difficulty of obtaining a perfect joint between the stump of the root and the crown. After sealing the apical opening, grind the root under the free margin of gum, select the proper tooth, wrap very thin platina plate once around the entire length of the pin and solder with pure gold. Now prepare the root to receive this barrel, then burnish 32-gauge pure gold over stump, solder the barrel to the cap, insert barrel and cap, and with a wooden dowel mallet and burnish cap to a perfect joint with the stump, and trim the cap to the periphery.

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*Read before the Southern Illinois Dental Society, November, 1893.

Now remove cap and barrel and you have the exact surface of the stump *out of the mouth*, to which you can rapidly grind the tooth to fit. Then cement the barrel and cap to place on the root. We then have the tooth perfectly protected and a metal wall perfectly fitted to the post and crown. When cement is hard, then insert crown to place. The advantages in this new method may be summarized as follows:

1. That the difficulty of making a good joint in the mouth is overcome.
2. The stump is perfectly protected.
3. The tooth, with post, when finally inserted, fits tightly against metal surfaces, only a minimum amount of cement being required.
4. Any dislodging force must bear on every surface of both post and stump.

Dr. S. B. Prevost, Kansas City, gave an "original method of adjusting Logan crowns."

The doctor stated that he was led to the use of Logan crowns on account of the discoloration of plate teeth, having one case where three crowns, mounted in the front of the mouth, resulted in having no two teeth of the same shade, although they matched as to color perfectly when selected for the case, the discoloration resulting from the backings.

The first step is to grind the tooth so that it approximates a fit, the root is banded, the band ground evenly with the end of the root, removed and a disk fitted to the band and soldered into place, a hole punched for the admission of the pin of the crown, the cap is replaced, and the crown fitted nicely to the cap, but the posterior or distal part of the crown is ground away so as to leave a wedged shaped opening, the crown removed and a disk of thin, pure gold is burnished to the end of the crown, a little hard wax is placed over the disk, when the crown is driven to position, the whole removed, invested, and the wedge-shaped opening filled with a high grade of plate or solder. The crown is then finished and set with cement. The crown can be set so that but little, if any, of the band shows.

MEMORANDA.

Sir Andrew Clarke is deceased.

Dr. W. J. Martin has gone to California for his health.

Dr. W. F. Griswold, formerly of Leavenworth, Kansas, is deceased.

Catching's Compendium for 1894 will be out shortly after the holidays.

Dr. R. J. Wenker has removed from Duluth to Watertown, Wisconsin.

Dr. W. B. Kingsbury of Santa Clara, California, is no more. He died at the age of sixty-six.

Vaseline soap for the hands of a mechanical dentist or laboratory worker will be found useful.

One hundred and twenty grains of chloralamide was recently taken in one dose, and the patient recovered.

The holidays are upon us and the benevolent dentist is giving a set of teeth to his ——— Christmas turkey.

How about the Mississippi Valley Association of Dental Surgeons — the fiftieth anniversary you know?

The International Medical Congress will meet in Rome, Italy, March 29, 1894, and close April 5th. Dentists are invited to be present.

Dr. Chas. Warrington Earle, the President of the College of Physicians and Surgeons of Chicago, died in November at the early age of forty-eight.

TOO FUNNY YOU KNOW.

Ready made teeth for two dollars per set ——— on wax! or you can sort over a box full of misfits and take your choice. Teeth repaired, drawn or bleached while you wait.

When you want to recuperate, go to West Baden Springs, Indiana, on the "Monon" from Chicago or Louisville. The waters are similar to the famous Carlsbad waters in Bohemia.

Dr. Brophy's paper, read at the congress, on SURGICAL TREATMENT OF PALATAL DEFECTS has been republished in four foreign countries already. The Europeans call it "Brophy's" operation.

We recently received a genuine *mummy* from Peru. Dr. G. W. Sparrock is the donor. It is said to be 800 to 1,000 years old. His mummyship reposes in the museum of the Chicago College of Dental Surgery.

The two B's are having a bloodless contest at present, but wait until the moon changes—say in January—then let the toboggan slide or the buffalo drive, or let them kiss and make up. The war is over—two borders.

Dr. L. K. Fullerton, of Waterloo, Iowa, was severely burned by a gasoline explosion in his laboratory the latter part of November. His hands and face were badly burned. He is now rapidly recovering, and will soon be himself again.

The Pacific Coast dentist is anxious to hold a "Coast Dental Congress" during the midwinter fair. We are with you, and will come on if it is not held too late in the season. Say in March sometime or a little later.

Two hundred and sixty persons hold the D. E. D. P. of Paris. M. Chas. Godon graduated in 1880-1, and M. Dubois in 1881-2; M. Ronnet, 1881-2; M. St. Jean, 1884-5; M. Roy, 1885-6; M. G. Vian, 1880-1; M. Barrié, 1884-5; M. Fouchard, 1886-7.

NOTICE.

Any dentist not a member of the congress, desiring a copy of the Transactions of the Congress will be obliged to send his name and $10 in order to be sure of getting the volumes. Send the money to Dr. J. S. Marshall, Venetian Building, Chicago, before February 1, 1894.

The discussions before the Minnesota State Dental Society were sent to ye editor but the MSS. was lost out of his pocket on an Illinois Central train and has not been found. This is why the very excellent speeches of Messrs. Weeks, Stearns, Nutting and others are lost to the world.

BITTER WORDS.

Of all sad words of tongue or pen,
 The saddest ever known, without a doubt,
Come on that day of terror when
 The dentist says: "That molar must come out."

THE DENTAL INSTRUCTOR.

A little brochure of sixty-eight pages, issued by the "Isaac Knapp Dental Coterie," of Fort Wayne, Ind. From an examination of the pages we think the teaching is orthodox and of a good popular character, showing care in its preparation. The issuance of such pamphlets is of great service to the public in teaching lessons of hygiene and health.

FOR TOOTHACHE.

Chloroform, ten drops.
Carbolic Acid, ninety-five per cent, ten drops.
Glycerine, ten drops.
Morphine, one grain.
M. Use on cotton.

J. E. MORSE. M. D.

We are informed by Marvin Smith, M. D., of New Haven, Conn., that Emeline Roberts Jones, of New Haven, was an assistant in her husband's office prior to 1859, and after his death, in 1863, conducted the practice on her own account in her own name. Dr. Smith says that her's is the "distinction of being the pioneer woman dentist in the U. S." Now, let's hear from the next "pioneer."

We find the following in "Landmarks of a Literary Life," by Mrs. Camilla Crosland: "Not only did surgeons from all parts of the country hasten to the scene of slaughter (the field of Waterloo), but dentists had their emissaries to extract the teeth of the dead soldiers; for false teeth were then, in a grim sense, real teeth, not made from enamel." The writer of the above is still living in London (?) being at that time a little less than four years old.

FOR THE TEETH.—SOME EXCELLENT RULES TO FOLLOW IN THE CARE OF THEM.

A dentist in New York gives these rules for the care of the teeth:

Use a soft brush and water the temperature of the mouth. Brush the teeth up and down in the morning, before going to bed, and after eating, whether it is three or six times a day. Use a good tooth powder twice a week, not oftener, except in case of sickness, when the acids from a disordered stomach are apt to have an unwholesome effect upon the dentine. Avoid all tooth pastes and dentrifices that foam in the mouth, the lather is a sure sign of soap, and soap injures the gums, without in any way cleansing the teeth.

The very best powder is of precipitated chalk; it is absolutely harmless and will clean the enamel without affecting the gums. Orris root or a little winter green added gives a pleasant flavor, but in no way improves the chalk. At least a quart of tepid water should be used in rinsing the mouth, A teaspoonful of listerine in half a glass of water used as a wash and gargle after meals is excellent; it is good for sore or loose gums, it sweetens the mouth and is a valuable antiseptic, destroying promptly all odors eminating from diseased gums and teeth. Coarse, hard brushes and soapy dentrifices cause the gums to recede, leaving the dentine exposed. Use a quill pick if necessary after eating, but a piece of waxed floss is better. These rules are worth heeding.

Be assured of the genuine listerine by purchasing an original bottle.

If a fellow always uses "at least a quart of tepid water" rinsing his mouth he must quickly get that "tired feeling" which is undescribable!

FIRST DISTRICT DENTAL SOCIETY CLINICS.

Clinics were held on Tuesday afternoon, November 14, 1893, from two to five o'clock.

Dr. R. C. Brewster, Brooklyn, N. Y., showed some patients with syphilitic and other lesions in the mouth.

Dr. Frank A. Katzmeier, New York College of Dentistry, reduced a fracture of the inferior maxilla. He also showed some splints in position.

Dr. D. E. Morse, New York City, demonstrated the making of perfect joints with the mitering angle gum tooth jointing instrument. Also demonstrated the use of exact gauge for measuring rubber or other substance.

Dr. Nelson T. Shields, New York City, demonstrated the scientific filling of root canals with gold ; also the scientific preparation of cavities for permanent gold filling.

Dr. M. L. Rhein, New York City, demonstrated the cleaning of purulent root canals by use of potassium and sodium as introduced by Dr. Emil Schreier, of Vienna.

Dr. Chas. A. Meeker, of Newark, N. J., bleached a central incisor tooth with pyrozone.

Dr. John A. Daly, Washington, D. C., demonstrated a perfect method of lining rubber plates with pure gold ; also showed how a loose fitting rubber plate can be made to remain firm and comfortable in the mouth.

Dr. George Evans, New York City, demonstrated the mixing of oxyphosphate of zinc and method of retarding its setting ; also the use of combination of gutta-percha and oxyphosphate of zinc, for cementation of crown or bridge work, by which it is made easily detachable ; also the adjustment of ready-made gold crowns to models or in the mouth.

Dr. E. A. Bryant, Denver, Colo., demonstrated his system and methods of removable crowns, bridge work, and the porcelain facings thereof ; also a simple and strong method of replacing the facings broken from bridges of other methods.

Drs. Stanton and Baker, New York City, demonstrated the making of a practical piece of bridge work and adjusting the attachments without grinding the teeth.

Dr. J. B. Day, New York City, demonstrated the making of partial rubber plates and repairing the same without waxing or packing.

Dr. C. P. Pitman, Freehold, N. J., adjusted the new rubber dam.

JOHN H. MEYER,
W. E. HOAG, } *Clinic Committee.*
H. J. HULL,

DOGBERRY ONCE MORE!

An opinion was handed down in court in banc at Jefferson City, Mo., December 5, by Judge Sherwood and concurred in by Judges Barclay, Gantt and Burgess, which settles the question as to the liability of dentists to perform jury service. The majority of the court holds that a dentist is neither a doctor nor a surgeon so far as his profession is prescribed by Missouri law, and is not, therefore, exempt from jury service as an M. D.

This opinion, however, is dissented from by Judges Brace, Black and McFarlane, they holding a diametrically opposite view. But four being a majority of the court the opinion stands as law.

Judge Sherwood is pleasantly facetious in his opinion, and closes with the following :

"The dispositions of persons to magnify and exalt their callings or occupations has become wonderfully prevalent in these latter days. He who shoves a jack plane and wields a saw is no longer a 'carpenter,' but an 'architect and builder.' The solicitor of orders from our retail merchants is no longer a 'drummer,' but a 'commercial traveler,' and the loquacious individual who scrapes your chin is no longer a 'barber,' but a 'tonsorial artist.' But this euphemistic style of dressing things in different and more high-sounding verbiage does not alter their essential nature, nor has the least tendency to evade the force and effect of the statutes pointing out those who are subject to jury duty and those exempt therefrom. A tooth doctor is no more exempt than he who is content to be dubbed 'corn doctor.' "

PREAMBLE AND RESOLUTIONS ADOPTED BY THE ILLINOIS STATE BOARD OF DENTAL EXAMINERS, IN SPRINGFIELD, NOV. 14, 1893.

WHEREAS, It appears that this Board has been appointed to carry out the provisions of an act approved May 30th, 1881, entitled; "An act to insure the better education of practitioners of Dental Surgery, etc.," and

WHEREAS, It appears to be the unanimous wish of the Dental profession of this State that the public should be protected against Dental quackery, and

WHEREAS, It has been found that the only real protection against Dental quackery, and the wish of the great majority of the Dental profession of this State is that ALL those who wish to enter into the practice of the Dental profession in this State should be examined by this Board, be it

Resolved, That all Dental Schools and Colleges chartered by this State shall be requested to allow this Board or a member or members of this Board therefor selected to be present at the examination, and see all the questions and answers of, or examine their candidates for graduation prior to and before the aforesaid Dental Schools and Colleges, confer their regular Degree of Doctor of Dental Surgery on the aforesaid candidates, and it is further

Resolved, That all Dental Schools and Colleges as aforesaid, which consent to the examination of their candidates for graduation, in writing to the Secretary of this Board shall be recognized by this Board as *reputable*, and be it further

Resolved, That all Dental Schools and Colleges of this and any other of the United States, as well as any foreign State which do not consent to the above and which do not carry out their rules and regulations as laid down in their announcements or the tenets of Dental organizations to which such Dental Colleges or Schools, or their Faculty, may belong, shall not be recognized as reputable by this Board of Dental Examiners of the State of Illinois, it is further

Resolved, That all prior rules of this Board in conflict with the above resolutions are herewith repealed.

SPRINGFIELD, NOV. 14, 1893.

G. A. MCMILLEN, Pres't.
L. L. DAVIS,
L. IRONS,
GARRETT NEWKIRK,
FRITZ W. HUXMANN, Sec'y.

CHICAGO, November 25, 1893.

The undersigned representatives of the following Colleges approve the above preamble and resolutions;

Chicago College of Dental Surgery, by A. W. Harlan, Frank H. Gardiner.
The American College of Dental Surgery, by Theo. Menges.
The Northwestern College of Dental Surgery, by E. Kargau.
Northwestern University Dental School, by Chas. P. Pruyn.
The German American Dental College, of Chicago, by Wm. M. Rosenthal.
Columbian Dental College, of Chicago, by I. Clendennen.

N. B.—The law requires the Secretary of the Illinois State Board of Dental Examiners to make a report to the Governor of Illinois each year. The report will be ready for the printer Dec. 15. The Dental Schools and Colleges not heard from in time will not appear on the list of Colleges and Schools recognized by this Board.

FRITZ W. HUXMANN, D. D. S., Secretary,
1600-1605 Schiller Bldg., Chicago, Ill.

SYNOPSIS OF DR. BONWILL'S PAPER ON EVOLUTION.

I claim, first, that the human jaw and teeth show, beyond doubt, the workings of absolute laws which give them the highest efficiency, and from which organization there could be no change except retrogressive, not progressive; not to a higher form.

Second—The human jaw is based for its organization and workings upon the principles of the equilateral triangle, which as well underlie the shape of every tooth and the numbers to occupy that equilateral space.

Third—Give the length of one arm of this triangle, say four (4) inches, and it can be shown from this alone how, whatever or whoever made the first human aw, that with a pair of dividers and a straight-edge the size, shape and number of each tooth in both upper and lower jaws and their absolute places therein were made; and further what should be the exact arch containing the six incisors in both jaws and the action in mastication and incising of food.

Fourth—That the human jaw is no exception to this rule. That the proportions of the human body are found on the equilateral triangle, and unless so, no fittest organization could have ever existed or been brought into being, nor could it ever have been reached unless by the same rule at the very beginning of its existence.

Fifth—That, if the hexagon cell of the honey bee, which cell existed before man, is incapable of change to make it fitter for the object for which it was designed, then we can claim it as a precedent that the same principle in the human jaw is none the less true and demonstrable.

Sixth—I claim not only to have discovered the laws by which organizations are made, but have perfected the drawings from these laws by which any skilled artisan or mechanic can reproduce and duplicate, artificially, what the working model here presented, demonstrates, and its action shows, beyond doubt the highest efficiency in such an arrangement, based simply on the principle of the equilateral triangle.

Seventh—If the human mind cannot conceive of a fitter organization than what is here demonstrated, and produce it from the laws and principles of evolution, then there can be no progression to a higher state that can form a basis of argument for the evolutionist.

Eighth—That if no one can show any fraud in this work and the claim of "an ultimatum not having been reached" by a human being, it must follow that nature who had the first chance at the building of organizations, must have done her best and made the very fittest in the beginning.

Ninth—It is claimed that natural selection could only have reproduced a preëxisting organ or organism or previous type, and could add no new organ or alter the form of the preëxisting one to higher efficiency.

Tenth—That mechanical means which can only be externally applied, cannot even reproduce an existing type, let alone form an additional organ or organism.

Eleventh—There is no proof that, when any organ has once been lost, it has ever been reproduced in the same animal; while, in the progeny, the same organ will again appear. Nature will patch up in order to prolong life, but never in one lifetime make the effort to even reproduce the lost organ, nor lay the foundation in the offspring to make an additional organ, either like the original or make one of a higher efficiency.

Twelfth—The human jaw (to the glory of dentistry) furnishes one of the strongest or most absolute proofs of Claim 10 in the reproduction of the temporary set of teeth, which, when completely lost at the age of fifteen, again appear in the offspring when there was no such organism existing at the time of procreation to give birth to an entirely new temporary set in that offspring.

Thirteenth—The dental apparatus affords the best proof of the workings of a practicable scientific workman from preëxisting laws, and nothing but intelligence and a personality could have ever conceived and made such organs and organisms, and no further proof is needed of the purely scientific productions given in this discovery.—*Congress.*

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